1934.
QUEENSLAND.

IMPERIAL MYCOLOGICAL INSTITUTE
9 JAN 1935

ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE AND STOCK

FOR

THE YEAR 1933-1934.

PRESENTED TO PARLIAMENT BY COMMAND.

BRISBANE:
BY AUTHORITY: DAVID WHYTE, GOVERNMENT PRINTER.

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REPORT OF THE DEPARTMENT OF AGRICULTURE AND STOCK FOR THE YEAR 1933-34.

TO THE HONOURABLE THE SECRETARY FOR AGRICULTURE AND STOCK.

SIR,—I have the honour to present herewith my report for the year ended 30th June, 1934.

SEASONAL CONDITIONS.

Throughout the agricultural districts the rainfall for the year was well above the average. Winter rains were heavy and widely distributed. A wet spring improved the prospects of a phenomenal crop year, especially for grain, but heavy rains at harvest time delayed all field work, with the result that early estimates were not fully realised. The tobacco crop also suffered from excessive rainfall at critical periods, and in only one district—Texas—were the seasonal conditions normal for the full period.

In the Southern Division any reduction in crop yields through excessive or inopportune rains was offset by the benefits of a wet year to the grazing and dairying industries. Early sowings of winter fodders were possible, and there was an abundance of summer crops for storage for stock, either in stack or silo—a practice, by the way, which every year is gaining wider recognition as an important factor in the rural economy of this State.

In the Central Division the rainfall in the agricultural districts, both in respect of quantity and distribution, was the most satisfactory for many years. In the Mackay district, however, the season, although the rainfall was 2 inches above the average, was unusual, and all crop calculations were upset. From July to December the weather is usually dry in that region, the average precipitation being about 15 inches; but last year 34 inches were registered during that period. Cane-harvesting and other farm activities were seriously delayed through the waterlogging of the land, with consequent loss to the sugar industry.

In the Northern Division the rainfall records for the year were the highest for seven seasons, and the wettest summer since 1916 was experienced. The aggregate for the year for the division (excluding the figures for the sugar-cane country on the tropical coast) was 55·36 inches, against an average over many years of 46·46 inches. Heavy and continuous rains throughout the summer and autumn caused heavy flooding in the coastal rivers. On the tablelands somewhat similar conditions prevailed. The transport of produce, especially of cream, was delayed seriously from time to time. Farmers were faced with the difficulty, and often the impossibility, of working their waterlogged land. The persistent rains retarded rather than promoted plant growth.

Seasonal conditions in the interior were satisfactory, with plenty of grass and water for station stock.

The sugar districts had an extraordinarily good year. In the far North, however excessive rains and lack of sufficient sunshine have compelled a revision of earlier crop estimates for the present crushing. Although cane tonnages may not be so heavy as last year, compensation will probably be found in a sweeter crop, for which present winter conditions are generally conducive. The widely beneficial rains in the southern districts during the growing period have resulted in the production of the biggest cane crop to be harvested since 1924. The early forecast may, however, be considerably reduced on account of abundant flowering in all areas. When the cane has arrowed, no further growth may be expected, and so it is possible that much of the crop will have reached full maturity before it falls to the knife.

Most of the cotton districts enjoyed an exceptional season, marked by record rain registrations and an unusually cool summer; consequently, all previous production figures for any one year will be substantially exceeded.

Similar conditions in the fruit-growing districts were, however, against high yields. After the bountiful spring rains, the fruit set excellently, but the wet and mild summer caused delay in maturity, the development of soft rot, and a limitation of the period for storage and regulated market supply.

Copious rains were experienced throughout the dairying districts at intervals from early spring to late autumn. The season was the most productive since the industry was established in Queensland. In some localities heavy and continuous rains prevented regular cream deliveries, to the detriment of the factory product, but, fortunately, this experience was not general. The best evidence of the remarkably good season for dairying is the record factory output.

From the standpoint of production, seasonal prospects for the coming year are bright. A good spring is assured, and, except in some areas which did not share very largely in last year's generous rainfall, the present pastoral and agricultural situation may be viewed without anxiety.

AGRICULTURE.

Wheat.—Wheat Board deliveries totalled 3,943,960 bushels, as against 2,550,402 bushels in the previous year.

A wet harvest reduced the yield and quality of the grain considerably; consequently, crop estimates based on generous winter and early spring rains were not realised. Late in October the wheat, generally, was ripe for the harvest; but, owing to continuous wet weather at that time, it was mid-December before the last of the crop was in the barn.

Rust made its appearance in some localities, and late sowings of the more susceptible varieties suffered severely. Fortunately, the incidence of weevil infestation, for which the weather at harvest time was so favourable, was much less than was anticipated.

In Central Queensland wheatgrowing remains largely in the experimental stage, although individual areas up to 300 acres were harvested for grain in some localities. Some of the crops were damaged by early summer storms, but, in spite of heavy lodgment, one crop yielded over 30 bushels per acre. On some farms continuous rain and high humidity caused much of the grain to sprout in the ear.

Field trials were continued in the Central Division, and much useful information was obtained; but it cannot be said yet that wheat-growing for grain has made very noticeable progress near to and north of Capricorn. Of the several wheats that are still subject to experiment in different districts, Florence withstood adversity better than other varieties under trial.

Results of varietal and manurial trials under field conditions—an extension of the work of the Roma State Farm referred to in my last report—are set out in an accompanying account of the year's work at Roma. Some of the newer cross-breds have been tested for protein content and gluten quality. Several proved to be quite satisfactory and worthy of further test as to their suitability in other respects.

Results of the propagation programme, which has extended over a series of seasons, are shown in an increasing number of improved wheats passing into general cultivation, and especially in the maintenance of purity of type of the varieties cultivated. Farmers in the grain-growing districts continue to co-operate with the Department in local experimental work. Increased yields and higher bushel weights are the results of this practical co-operative effort.

The position of the wheat industry from the commercial aspect is dealt with in my review of the operations of the Wheat Board for the year as Director of Marketing, which is incorporated herein.

Maize.—Aggregate maize plantings for the year covered 150,000 acres. Early in the season an unusually heavy harvest was in prospect, but later weather conditions altered the whole outlook for the maizegrower. On the Darling Downs and below the Range returns for the early-sown crops were fairly satisfactory, but the later-planted maize suffered severely through the occurrence of a dry spell at the tasselling and cobbing stages of development; threshing results were, consequently, far below the original estimate. Excessive rainfall was against high yields in the coastal country. South Burnett farmers were more fortunate, and rain at the right times ensured the bagging of a full crop, much of which is still held in storage on the farm in anticipation of price improvement.

In the Central Division cotton has, to a large extent, replaced maize as a main annual crop, although much is grown for green fodder, as well as for grain, for feeding to farm stock.

On the Atherton Tableland an excessively wet season restricted all field operations; consequently, the acreage planted was considerably less than that cropped in the previous year. The aggregate area under crop was 18,000 acres, from which a yield of 7,000 tons of grain is anticipated—the lowest since the district maize pool was established. The operations of the pool for the term are also reviewed in another section of this report.

There is a possibility of the barren patches which are a peculiarity of the Atherton maize lands, referred to in previous reports, yielding to special fertilizer treatment. Experiments were continued during the year with filter-press cake as the fertilizing medium, and results show a considerable improvement in the plants on the treated area.

The seed maize improvement work, in co-operation with experienced farmers in different districts, continues to produce results beneficial to the industry. Although climatic vagaries in the localities where the plots are cultivated were against very high yields, the objects of the scheme for the year were achieved.

Some remarkable results have been attained by the officers of the Agricultural Branch who specialise in maize breeding and improvement. On trial plots yields representing 117 bushels to the acre have been obtained; while actual acreage yields have, under the most favourable seasonal conditions, been frequently in the neighbourhood of 100 bushels.

Increased acre yields and a higher standard of quality of Queensland-grown grain are definitely attributable to the policy and efforts of the Department, which, judging by strengthening seasonal demand for seed maize true to type and of high-yielding characteristics, are appreciated by farmers in every maizegrowing district.

Barley.—With a view to improving the quality of our malting barley, pure strains were introduced from England and New Zealand. The malting quality of these barleys under Queensland conditions was, however, rather disappointing, and many growers have reverted to the cultivation of the Chevalier variety—for the current season, at least.

Comparative trials of barley varieties were inaugurated.

Yield and quality were affected unfavourably by the weather, which delayed the mid-seasonal and late-harvested crops; consequently, the domestic demand for grain of the required malting standard could not be met. The rejected grain had to be sold very cheaply as stock food, in keen competition with feed wheat and maize on an over-supplied market.

Canary Seed.—Impressed by the comparatively high price ruling for this commodity, farmers increased their plantings last season. As the Commonwealth market absorbs less than 2,000 tons annually, ordinary caution calls for a consideration of the possibility of over-production. This actually happened a few years ago, when our production amounted to 3,516 tons, and difficulty was experienced in selling the surplus seed. Payment to growers was delayed. Through the inevitable reaction, supplies fell below requirements in subsequent seasons. The necessity for reasonable crop regulation is, therefore, obvious.

Buckwheat.—Small plot trials were carried out with four recently introduced varieties; they all grew and seeded well, but excessive weather caused germination before most of the crop was fit to harvest. Sufficient seed was saved, however, for the more extensive trials which have been planned for the coming season.

Tobacco.—In terms of an arrangement with the Commonwealth Government in the course of the year, the instructional staff was augmented. An extensive programme of experimental work was planned. The occurrence of blue mould prevented the complete success of varietal and fertilizer trials. Gratifying results were obtained, however, from other experiments, of which details are given in the reports of the officers concerned.

Excessive rainfall in every district—Texas excepted—and accompanying high humidity caused the development of fungus diseases and a consequent grave reduction in the yield of marketable leaf. South of Bundaberg the September sowings were most satisfactory, and the resultant leaf was of good quality. The later sowings were, however, a comparative failure, due to continuous wet weather, which rendered disease-prevention measures quite innocuous. Blue mould was rife in most of the crops. An improvement in the weather conditions during the autumn promoted new and vigorous growth, but at the expense of quality. Under the changed conditions the leaf coarsened considerably, making it difficult to colour in the barn unless quite ripe.

Successive floods and blue mould attack were so serious in some localities that farmers were forced to abandon tobacco-growing for the season. A compensating factor was the high quality of the leaf harvested, for which a better average price was received than that obtained at the sales of the previous season.

An interesting experience of the past year was the effectiveness of a spraying mixture evolved by the Department for the control of blue mould.

It is pleasing to report that other tobacco diseases, notably "frog-eye" and "barn spotting," were not so widely in evidence as they were in the previous crop.

Pest attack on the tobacco plants was more serious, however, in its more widely spread incidence. The control measures applied, and other measures adopted to cope with pathological and cultural problems generally, are described in another section of this report.

Although the general tobacco yield in the Northern Division was lighter than that of the 1932-33 season, a high percentage of bright leaf was produced. Fine in texture, with a good body, its quality generally was excellent. Estimated yields of leaf from the northern tobacco areas aggregate 816,430 lb. from, approximately, 2,455 acres planted.

Broom Millet.—Medium crops of good quality were grown in various districts, but market returns, in common with the prices of so many of our agricultural products, were not entirely satisfactory.

Root Crops.—General seasonal conditions were strongly conducive to the development of fungus diseases. Irish blight seriously affected the summer crops in the Southern Division.

Increased attention is being given to potato cultivation in the Central districts of the State, and, especially where water for irrigation is available, considerable success has been achieved. In the far North, notably on the Atherton Tableland, some extensive plantings were made, but the exceptionally wet summer there was against heavy baggings.

The sweet potato crop was a heavy one. The seedlings raised by the Department some years ago are now the main varieties in cultivation.

Further onion trial plots were established in different localities in the Central Division, and the suitability of the Early Hunter River Brown Spanish variety for cultivation there was definitely determined. Other varieties submitted to test proved to be more or less unsuitable for general cultivation under local conditions. Through faulty germination, variety trials in the far North were unsatisfactory.

The commercial onion crops produced last year were up to the average, and were of good quality.

The production of other root crops was normal.

Legumes.—Varietal trials of soy beans were made, but continuous showery weather during the critical period of the test prevented full-seed development. One variety—Ototan—proved to possess outstanding characteristics, both as a fodder and as a green manurial plant.

Interesting results were obtained from a series of *lespedeza* trials, details of which are given elsewhere.

Considerable expansion in peanut cultivation is reported, and heavy crops were produced. In the Central and Northern agricultural districts this crop is increasing in importance. In the far North, the area planted for the coming season is more than double that of the previous year. Trial plots were laid down for the benefit of local farmers, who are seeking an alternative to tobacco growing.

An account of the marketing operations of the commodity board controlling the commercial side of the industry is contained herein.

The year's production of other leguminous crops was of normal volume.

Fodders.—The millets, panicums, and sorghums were all prominent in the cropping programme for the year, especially in the dairying districts.

It was a remarkably good year for lucerne, and heavy cuttings were recorded in every producing district. The distribution of this valuable crop is extending widely, and it is now grown in situations which farmers in former days would have condemned as quite unsuitable for its cultivation.

Fodder conservation is now regarded more widely as essential in successful dairy practice, and the policy of the Department in this respect is meeting with general support. Trial and demonstration plots have been established in different districts for the guidance of farmers in this important branch of agriculture. Results for the year are reviewed by the officers engaged in these field activities. Demonstrations of the economical methods of storing fodder in stack and silo were also included in the instructional work of the year.

Pastures.—The Departmental Pasture Improvement Committee carried out some useful experimental work with introduced grasses and fodder plants in the course of the year.

A considerable amount of investigational work on native grasses was also done during the term. The services of the field staffs of the several branches were co-opted for the collection of material, which is now in course of collation. In addition to extending our knowledge of indigenous grasses and fodder plants, this work will form a basis for further investigations which must be pursued if the carrying capacity of our western pastures is to be maintained and, if possible, increased.

Graziers and farmers are manifesting a keen interest in ever project for improving the carrying capacity of their holdings, and this has led to a widening distribution of introduced grasses and legumes to supplement the natural pastures, and, where necessary, to replace those that have, unfortunately, been depleted.

Grass observation plots have been laid down at the St. Lucia Training Farm, and from these plots plants are distributed for field trial in country districts.

From pasture plots established in the Central and Northern Divisions, under diverse conditions and covering a wide range of territory, much valuable information has been derived.

As mentioned in previous reports, Queensland is remarkably fortunate in the number and nutritional value of its native grasses. Primary producers are now seized with the importance of preserving and improving these great natural assets. As nearly the whole of our national income is derived from our grasslands, sound pasture management is obviously of first importance in our rural economy. Scientific investigation was, therefore, intensified during the year.

Graziers are interesting themselves in the establishment of the more valuable native grasses, notably Mitchell and Flinders which cover such a vast area of our Western sheep country, in districts nearer the coast. In the brigalow country particularly, some good swards of these grasses have been produced by seeding newly cleared land. Although these areas, dependent as they are on individual enterprise, are necessarily small, they serve to demonstrate the possibilities of extending the growth of nutritional native grasses beyond the limits of their natural habitat to our "inside" country.

Much has been done by the Department to develop "grass-mindedness" throughout Queensland. Before long, it is believed that the same consideration will be given to the renovation of farm pastures as is now bestowed on the annual fodder crop.

Details of the year's investigational and experimental work are set out in other divisions of this report.

Reviewing the agricultural year generally, the rainfall was above the average in nearly every district. While in some districts it was in excess of requirements, or occurred inopportunely, crop production on the whole was satisfactory. Any reduction in crop yields caused by excessive rains was more than equalised by the benefits derived by the grazing and dairying industries.

In most dairying districts there was an abundance of grass and summer crops for conservation for winter use. Dairy farmers were also able to make early sowings of winter fodders for grazing.

A greater acreage was cultivated for wheat and maize than in the previous year. Although yields were not as heavy as anticipated early in the season, due largely to a very wet harvest, they were, nevertheless, very satisfactory.

Farmers continue to display a commendable willingness to co-operate with the Department in its extension of agriculture on sound economic lines.

ROMA STATE FARM.

The State Farm at Bungeworgorai, near Roma, had an unusually good season, with a well distributed rainfall aggregating 24·01 inches. The regular plant-breeding and crop improvement routine was followed throughout the year.

The protracted dryness of the previous autumn delayed wheat-planting until July, making the season six weeks late. Crops responded remarkably to the generous spring rains, although rust afterwards wrought havoc among the late sowings of the more susceptible varieties. Wet weather also delayed the harvest, and so affected adversely the quality of the grain. Detailed field observations of the wheat propagation plots, and of other crops under trial, are duly recorded in the Manager's report, which is incorporated herein.

The returns from the vineyard were disappointing. The continuous rain at the beginning of the season conduced to the development of insect and fungoid pests which, together with heavy downpours in the midsummer, so impaired the quality of the fruit as to render much of it unfit for market. The new seedling varieties subjected to trial represent several of the crosses evolved at the farm. Of the seedlings set out three years ago, three or four at least are showing considerable promise of success.

Trials of citrus and deciduous fruits were continued, but fly infestation seriously affected the orchard crops.

Plot trials of pumpkins, watermelons, field peas, feterita, peanuts, olives, date palms, Sudan and other grasses were all included in the operations of the year.

ST. LUCIA FARM SCHOOL.

In the course of the year just ended, ninety-four boys, who were well trained at the St. Lucinda Farm School in the rudiments of rural industry, were placed on farms. Four were awarded scholarships at the Queensland Agricultural College and High School; fourteen found employment other than farming; and sixteen, some of whom were not likely to benefit from the training, left the school without completing the six months' course. At present, fifty-seven boys, half of whom are in residence, are in attendance.

The area at present under cultivation comprises 32 acres, including 12 acres under maize and 5 acres in use by the Pasture Improvement Committee.

Root and fodder crops were produced in abundance for farm use. Fodder conservation and grassland economy were practised for instructional purposes as well as for their value in the domestic economy of the school.

The curriculum has been planned on broad and sound lines, with the idea of giving the boys a practical grounding in elementary agriculture and animal husbandry. The general routine of diversified farming is practised under competent guidance. The training course covers the use and care of ordinary farm implements and machinery, bushcraft, and bush carpentry. Included in the progressive programme for the year was the establishment of an extensive plantation of the Queensland nut. On the domestic side, the farm training school is practically self-supporting.

Recreational facilities are provided, and the general welfare of the trainees is very carefully studied.

At the end of July last year the first group of trainees, on completion of the initial school course, was absorbed immediately in rural employment. Since then the demand for boys trained at St. Lucia has far exceeded the supply. As each group leaves, a similar number is enrolled, and so its full strength is maintained from term to term. The boys represent a fine type of Australian youth—intelligent, active, country-conscious, and imbued with a very fine spirit. The staff has succeeded in creating a good tone in the school, and to which the trainees respond very readily.

Reports from farmers who have St. Lucia boys in their employ are invariably highly appreciative of both the character of the trainees and of the training they have received. Parents, without exception, have also expressed their appreciation of the opportunity provided by the school for their sons to engage in rural pursuits to the advantage of the State, as well as to the boys themselves.

The main idea behind the scheme was to give workless city boys an opportunity of training for a country career; it merited and received the support of citizens connected with progressive social movements in this State. Translated into fact, the success of the scheme, which was never in doubt, has already been amply proved.

COTTON.

In the cotton industry the outstanding experiences of the year were the record crop ginned and the progress made in developing supplies of seed of the varieties producing the medium staple cottons which are now required by Australian spinners.

The season, while somewhat variable, was fairly favourable for the cotton crop, and better than average yields were obtained by most of the growers in every district; with the exception of the Southern cotton-producing areas, where excessive rains during the latter half of the season caused heavy loss.

A total of 26,649,617 lb. of seed cotton was produced, which is approximately 46 per cent. greater than the previous record for this State —18,182,642 lb. produced in the 1924-25 season.

Anticipating the probable demand for the medium staple cottons that would follow the passing of a tariff schedule at all favourable to the Australian spinners, the department made determined efforts to increase the stocks of seed of the varieties which would supply such cottons. Sufficient seed was produced to plant, roughly, 40,000 acres in the coming season, and the Field Staff has been busily engaged all the winter in allotting this seed to the best advantage. Growers have thus been placed in a position to obtain the full advantage of any improvements which may be brought about by the recently approved tariff schedule covering the cotton-spinning industry.

Reviewing the season generally, it was a most exceptional one from the climatic aspect. A record rainfall was registered in nearly every cotton-growing district, and a most unusually cool summer was experienced.

In all but the Southern districts, a satisfactory improvement in yields was obtained as compared with the three preceding seasons, which were extraordinarily dry.

Unfortunately, there was no corresponding improvement in the marketing of the crop. The experience of nearly every season since the period of guaranteed prices terminated was repeated. Mid-seasonal difficulties and uncertainties concerning cotton sales affected the financing of the first advances to the growers. On being given a definite assurance that the Federal fiscal policy relating to cotton would not be altered during the calendar year the spinners entered into contracts to take about half the crop harvested at the end of June.

Fibre of qualities not required in Australia will, therefore, have to be exported, either on direct sale or on consignment. Up to 7,000 bales may, consequently, have to be sold overseas. The tariff position is still uncertain, and, therefore, the question as to whether the Australian spinning industry will develop further cannot yet be determined. Fiscal stabilisation is a matter of first importance to farmers generally, for additional reliable cash crops, such as cotton, are required in our agricultural economy.

The results of cotton-growing in all the main agricultural districts indicate that the cultivation of this crop is capable of great expansion.

The standard of cultivation, which has been improving steadily year by year, was remarkably good considering the showery weather experienced during the early growing period. Growers are realising the wisdom of working the land well in the early stages of crop growth, thus preventing the establishment of weeds and consequent addition to cultivation costs later on. The value of this practice was demonstrated in all districts.

By the end of June, 20,220,663 lb. of seed cotton had been picked. Growers numbered 3,098, and at mid-season they reported that 48,883 acres of the aggregate area sown was capable of producing yields worth picking.

The previous season's yield totalled 17,723,257 lb. of seed cotton, produced by 3,991 growers, who reported 80,743 acres as having crop possibilities at mid-season.

Prolonged wet weather, especially at harvest time, affected the quality of the crop. The average grade was, therefore, lower than that of other seasons when dry and sunny days ruled throughout the picking period.

The Cotton Research Station, Callide Valley, reports the best season since 1927-28. Reliable results were obtained from most of the experiments. It was the first season that the early October plantings at the station did not outyield later plantings. One outstanding feature of the year's experiments was the shorter height of plant over the whole of the station. Commercial plantings in most of the main cotton districts showed a similar reduction in height. On old cultivations of the richer alluvial soils, where for several seasons rank growth nearly always resulted, excellent types of heavily-laden plants were produced, even in late plantings.

But for the heat and dryness of January, phenomenal crops would probably have been harvested in many of the cotton districts.

As a result of the success of our work in pure seed production, the Department will probably be able to supply all seed required of the Durango variety; and, in addition, sufficient seed of a more recently improved stock to plant several hundred acres. The Lone Star variety gave excellent results in most of the districts in which it was tried, and, from present appearances, this will be a very suitable cotton for certain of the harder soil types over a wide range of country. Sufficient seed of this variety to plant 50,000 acres has been produced. Lone Star has proved to be especially suitable for the Mundubbera district, and a pure seed centre is about to be established there. It is of the heavy-bodied medium staple type now desired by the spinners. Stocks of seed of other proved varieties have been substantially increased.

Eight complete sets of lint standards, each composed of nineteen grades, were prepared by the Departmental graders.

The demand on the advisory services of the Department increased greatly in the course of the year.

Although pests and diseases caused considerable economic loss, they were not so widespread in their incidence as in former years. The corn-ear worm (*Heliothis obsoleta*), the rough boll worm (*Earias huegeli* Rozenk), the pink boll worm (*Platyedra* species?), and the cutworm (*Euxoa radians* Guen.) are the most important of our cotton pests, and constant departmental effort is directed to applying effective control measures.

SUGAR.

The Queensland cane crop for the 1933 season yielded 637,944 tons of 94 n.t. sugar. This yield greatly exceeded the previous record of 581,276 tons which was created in 1931. The marked increase was due in a large measure to the unusually favourable growing conditions experienced in all districts during the winter and spring months of 1933. Of the total yield, 72,000 tons constituted ''excess'' sugar—that is, sugar produced by several mills in excess of their peak allotments. This quantity was, therefore, disposed of at ruling export rates. The balance (509,276 tons) was marketed in the proportions—

57.781 per cent. for Australian requirements.
42.219 per cent. for sale abroad.

The price payable for the sugar required for consumption and use in the Commonwealth of Australia was declared at £23 18s. 6d., while the export surplus realised £8 0s. 6d. per ton. In comparison with the 1932 figures, it will be observed that a lower value was secured for both home-consumed and export sugar, while the unusually high production resulted in a larger proportion of export surplus. As a consequence, the average price for No. 1 pool sugar (not including ''excess'' sugar) was £17 4s. 3d., as compared with £19 6s. 1d. for the preceding crop, while the average net price for all sugar was £16 3s. 6d. This is the lowest value recorded in Queensland since 1914. Further, the phenomenally late crop growth resulted in a considerably reduced sugar content in the cane; so that the value received by the grower was in several mill areas 10s. per ton less than that paid in 1932.

For the 1934 harvest, the preliminary estimates (prepared in June) indicate that the yield of raw sugar in Queensland will be 636,000 tons. This is but 2,000 tons less than the record production of 1933, and is attributable in a large measure to the greatly improved growing conditions experienced in the southern areas. In many of these mill districts the crop is the heaviest recorded since 1925. The industry is, therefore, again faced with the prospect of exporting practically 50 per cent. of the crop, and it appears certain that the average price paid for No. 1 pool sugar at least will not exceed that of 1933.

Although the sugar-grower has hitherto not been placed in the distressing position of certain other primary producers, the present outlook is far from reassuring. Doubtless, many of his present ills are attributable to the large excess of export sugar which must be marketed overseas at a price lower than the cost of production. In common with other agriculturists, the cane farmer—and particularly the small grower—has, in the circumstances, attempted to maintain his income by the unhappy expedient of expansion of production. The greater the crop produced, the lower was the average price received, and hence the greater the incentive to produce more in a feverish attempt to survive. The small grower was once assured of a comfortable living on the returns from a crop of 250 tons of cane; but at present cane values it requires at least 400 tons to provide the income which is necessary to sustain him and provide for the adequate maintenance of his farm. The destiny of the small grower is unquestionably the most serious problem with which the industry is at present confronted and, so long as sugar values on the world's market remain at the present low ebb, his future is precarious.

It is pleasing to note that growers generally are not relaxing in their efforts to reduce still further their costs of production; and realising the dangers which might attend the uncontrolled expansion of the export surplus, the Bureau is encouraging methods of intensive cultivation on reduced acreages. Unfortunately, such a policy is scarcely capable of realisation on those lands where a combination of soil deficiencies and uncertain climatic conditions does not permit of comprehensive planning along these lines, and a continuation of low prices must impose severe hardships on growers who find themselves in this unhappy position. There can be no doubt that under Queensland conditions of production, any farm practices such as irrigation which will ensure a crop are worthy of the deepest consideration; and growers in those areas where facilities exist or could be created for this purpose are fully awake to the possibilities of these means of stabilising production and reducing growing costs. The more intensive use of fertilizers then becomes a profitable practice, and the quality of the land is guarded against deterioration.

The services of the field staff of the Bureau are in increased demand by growers desiring advice on improved methods; the present officers are not able to provide for the increased demands on their time, and further staff will be required for the effective working of this branch of our service.

The sustained efforts of the pathologists to the Bureau during the past six years have been rewarded in the production of a selection of valuable canes whose resistance to gumming disease has been rigorously established. These canes are now undergoing yield trial in comparison with the older standard varieties, and at least two appear to be superior from all aspects. It is, therefore, confidently suggested that the way is paved for the early eradication of this disease, which has for so long ravaged the crops in southern Queensland.

The results of the many projects which are at present the subject of investigation by the several branches of the Bureau will be recorded in the Director's Annual Report, which will appear later in the year.

REGISTRATION OF STALLIONS.

The examination of stallions for the purposes of certification was carried out during the year under review in the Moreton, Darling Downs, Wide Bay, Burnett, and Central Coast districts. The following is a tabulated statement of the results of these examinations:—

Board.	Bloods.			Draughts.			Trotters.			Ponies.			Total.		
	Examined.	Approved.	Rejected.	Examined	Approved.	Rejected.	Examined.	Approved.	Rejected.	Examined.	Approved.	Rejected.	Examined.	Approved.	Rejected.
Central Coast	34	17	17	30	10	20	..	..	..	4	3	1	68	30	38
Wide Bay and Burnett ..	34	31	3	88	57	31	4	4	..	19	19	..	145	111	34
East Moreton	64	59	5	45	31	14	9	9	..	5	4	1	123	103	20
West Moreton	18	8	10	50	33	17	6	4	2	9	7	2	83	52	31
Darling Downs North ..	38	28	10	77	62	15	4	2	2	12	11	1	131	101	30
Darling Downs South ..	22	20	2	46	28	18	2	2	..	7	6	1	77	56	21
Totals	210	163	47	336	221	115	25	21	4	56	50	6	627	453	174

PERCENTAGES OF APPROVALS AND REJECTIONS:

	Approved.	Rejected.
Bloods	77·6 ..	22·4
Draughts	65·7 ..	34·3
Trotters	84·0 ..	16·0
Ponies	89·3 ..	10·7
Total	72·3 ..	27·7

REASONS FOR REJECTION OF HORSES BY THE STALLION BOARDS:

District.	Sidebone.	Ringbone.	Roaring.	Cataract.	Stringhalt.	Curb.	Type and Conformation.	Total.
Central Coast	2	..	..	..	2	..	34	38
Wide Bay and Burnett	7	5	2	..	1	..	19	34
East Moreton	5	..	..	..	1	..	14	20
West Moreton	5	1	..	..	1	1	23	31
Darling Downs North	3	3	2	1	2	..	19	30
Darling Downs South	6	5	..	..	..	..	10	21
Totals	28	14	4	1	7	1	119	174

It will be noted that a very high percentage of draught horses were rejected, the reasons in the large majority of cases being for lack of type and conformation. In many instances farm stallions of distinctly inferior type were examined, and owners of horses should, in their own interests unsex this type of working stallions of mongrel breed and poor conformation.

It is intended at an early date to extend the provisions of "*The Stallions Registration Acts, 1923 to 1932,*" to further areas in the State where it will be practicable to arrange for parades.

PROTECTION OF NATIVE FLORA.

Arrangements have been made with the Main Roads Commissioner for the co-operation of his officers in checking the indiscriminate destruction and picking of protected native plants on reserves and Crown lands.

Detection of offenders is at times very difficult, but drastic action is intended to be taken to prevent the spoliation of our native plant life.

It is recognised that unless the public support the efforts of the Department and its rangers in dealing with these offences, opportunities for evading detection are increased, and it is therefore hoped that the assistance sought will be forthcoming.

PROTECTION OF NATIVE FAUNA.

Reports received from departmental officers throughout the State would indicate that the opossum, although fairly plentiful in certain areas of the Central coast and in the Central-western districts, is still scarce in certain other districts in the State where they previously propagated. In view of this fact, and also taking into consideration the low market price of furred skins, a decision was arrived at to continue the protection of the opossum throughout the year.

There has been considerable activity amongst bird lovers in the direction of the establishment of aviaries, and it will probably be necessary for the Department to provide for registration of these aviaries at some future date. At present our efforts are confined to the location of these aviaries, and to the insistence by the Department on suitable conditions being observed for their maintenance.

FRUIT.

It was a year of high production, and, unfortunately, low prices in the fruit industry.

Throughout the State the industry continues to advance steadily, both in respect of extending acreage and the number of people engaged in it. Banana plantings covered a further 6,000 acres; while deciduous, citrus, and miscellaneous fruit-growing continues to attract to this branch of rural enterprise many who are turning to the land for a living.

Among the more notable experiences of the year was the development of the apple export trade, in which our total shipments amounted to 45,000 bushels, about 12,000 more than last year. The diversion of his quantity from the home market had a firming effect on local values, otherwise growers would have had to be content with very much lower prices. The importance of the export trade from that standpoint alone is obvious. The export trade calls for careful and capable organisation, and in this connection the candid constructive criticism of the Acting Agent-General (Mr. L. H. Pike), who had the consignments to Britain closely inspected, should prove very beneficial to the consignors.

Pineapple production increased by 20 per cent., and so added to the marketing difficulties of the growers. The sum of £20,000 was made available by the Fruit Industry Sugar Concession Committee to assist the export trade in canned fruit, but that amount did not cover the sustained loss on the export market. The growers' organisation, however, balanced the loss with a levy on production, and thereby ensured a fixed price for processed pineapples. An effort was made, also, to obtain an increase of the Canadian preference on Queensland canned pineapples, but without success. Negotiations with New Zealand for the lifting of the embargo on the importation of fresh fruit from Australia succeeded to the extent that Queensland pineapples were permitted entry to the Dominion.

The pineapple crop for the year was exceptionally heavy, and as a result of greatly increased plantings, the volume of production in the coming season should be very much larger. In some localities the yield per acre could be improved greatly by more thorough and systematic cultivation.

Citrus-growers are also beset with a surplus production problem, and much is expected of the Citrus Investigation Committee, representative of all producing States, appointed in the course of the year, in respect of satisfactory marketing arrangements.

Production of deciduous fruits in the Stanthorpe district did not come up to expectations, for the abnormal seasonal circumstances—continuous rain, lack of sufficient sunshine, and low summer temperatures—were against a realisation of early crop estimates. The weather conditions conduced to the spread of Brown Rot, which was responsible for much damage to the stone fruit crop during the season.

Vignerons, for the same reason, had to contend with Black Spot, which was very prevalent. They, too, are being compelled to consider the expansion of their export trade. Unfortunately, they missed a good market last season for Muscat grapes in Canada, apparently through lack of interest or organisation.

In the citrus districts on the North Coast the effects of a good spring were seen in heavy crops well set up. Until the end of December results were excellent, but continuous rain and a cool summer from then on reduced greatly prospective returns. Fungus diseases also found the weather conditions congenial. Where sound orchard practice was applied, however, particularly in respect of cultivation and fertilizing, climatic extremes had far less detrimental effect than on orangeries where systematic care and attention were lacking. The number of citrus groves in the coastal districts is still being reduced gradually on account of unsuitable environment.

Although similar weather conditions were experienced in inland districts, the rains were less severe on trees and fruit. This was notably so in the Gayndah district, from which a very fine crop of summer lemons was marketed in February and March.

Orchardists are now realising that it is only on the more favourably situated farms that there is an assurance of economic production over an indefinite period. Greater attention is therefore being paid to the selection of sites. If irrigation water is available so much the better. Citrus fruit-growing is, consequently, becoming a better balanced industry. It is believed that its future in Queensland lies in districts like the Burnett, where there is plenty of suitable land and an unfailing supply of water.

The citrus budwood scheme introduced last season, and mentioned in my last report, is working very efficiently. Altogether 25,000 buds were specially selected for the autumn budding, and a similar number will be required for the spring.

In places on the coastal ranges citrus groves are giving way to pineapple plantations. Success should follow the change if the land is thoroughly reconditioned and adequate shelter from prevailing high winds provided.

Permits were issued for the planting of approximately 4,250,000 suckers, representing an additional prospective cropped area of 10,000 acres. For various reasons the new areas actually planted aggregated only 6,000 acres. The season's plantings brought the area under bananas in Queensland up to 20,000 acres, from which an annual yield of 1,000,000 cases a year is a fair expectation. That total equals the peak in banana production in this State, which was attained in 1928. Since then the output of the industry has declined to half that quantity, mainly through the ravages of disease.

With greatly increased production in sight, and the keen competition of New South Wales growers—who have an equal area under crop and have planned further extensive plantings in the coming season—on the Australian market, the outlook for the industry is anything but bright from the economical point of view. The natural corollary if the present state of affairs continues will be the abandonment of unfavourably situated areas and marginal and submarginal banana lands.

Having to be marketed as fresh fruit and with no export possibilities, the only easement of the banana situation lies in the stimulation of popular demand, and efforts are being directed towards this end. The necessity for enforcing the observance of grading and packing standards is plain.

The present Australian consumption of bananas is 14 lb. per capita, as compared with 25 lb. in the United States of America.

The South Coast district, where the industry has revived strongly since its survival of the Bunchy Top outbreak some years ago, has regained its supremacy among the banana-producing districts of Queensland.

The production of both temperate and tropical fruits is expanding gradually in the Central and Northern districts of the State. Untimely rains and other climatic factors affected crop returns. North Queensland has a steadily developing fruit market, which is well supplied from its own orchard lands. Not only is the local demand largely satisfied, but the requirements of a good market in the North-Western pastoral and mining district are also being met. The natural result is an expanding acreage and less dependence on Southern supplies.

Among the newer fruits coming into cultivation is the Avocado pear. Varieties selected for their suitability under Queensland conditions are producing fruit that is growing in popular favour, consequently present prices are very profitable.

Plantations of the Queensland nut, for which excellent markets exist both at home and abroad, are increasing rapidly.

Vegetable growers had a very lean year, adverse weather conditions being chiefly responsible.

Experimental plots of dates, olives, and Queensland nuts were established in the course of the year with the object of determiing suitable varieties for the State, and opening new fields of primary industry. Other problems of importance to the several branches of the fruit industry are also being investigated, and the results so far obtained are promising.

Legislative provisions for the more effective control of fruit pests and diseases were among the more important administrative measures of the year.

Pests and diseases of fruit are dealt with in detail by the Chief Entomologist in another part of this report.

Among the pleasant experiences of the year was the evidence of closer attention to packing and grading in every district. Growers evinced a desire to market only the best quality fruit, and in many instances official supervision was quite superfluous. The value of other departmental activities was reflected in high cultural standards and improved marketing methods.

Rail and port inspections were carried out systematically and, as the attached tables show, the trade balance was in favour of this State. Exports included: Bananas, 365,537 cases; citrus fruits, 14,442 cases; pineapples (exclusive of canned and proceeded pineapples), 346,156 cases; tomatoes, 341,363 cases; strawberries, 6,735 cases; other fruits, approximately 110,000 cases. Fruit imports totalled 749,466.

BANANA INDUSTRY PRODUCTION BOARD.

The supervision of banana-growing in the State was continued by the Banana Industry Protection Board with satisfactory results.

Bunchy Top made a slight advance northwards during the year, about 2½ miles in the maximum, and as a result the northern boundary of the quarantine area, previously the Maroochy River, was advanced to approximately the level of Yandina, and with the consequent intensive inspection now being given to the newly affected area it is hoped that once again the northward spread of the disease will be arrested.

Special precautions with regard to the removal of suckers are being taken in order to prevent the introduction of Thrips (*Scirtothrips signipennis* Bagn.) into districts so far reported clean of this pest.

During the planting season 1933-34 over 2,800 permits, covering over 4,250,000 suckers, were issued to growers. Of these suckers nearly 1,000,000 were for planting in the districts from Southport and Nerang to the New South Wales border.

DAIRYING.

In our dairy production for the year all previous records were eclipsed. The actual butter factory outturn was 123,918,257 lb., compared with 100,028,578 lb. in the previous term. The exportable surplus amounted to 1,766,875 boxes, equal, approximately, to the entire Australian butter export of six years ago.

Good dairying weather prevailed almost throughout the year, and to favourable seasonal circumstances the great increase in production is largely due. Other contributing factors included the closer settlement and the development of Crown lands, the reclamation of large tracts of fertile country from prickly-pear infestation, and entry into the industry of land owners who had been, until lately, engaged solely in pastoral pursuits.

A continuation of low live stock values and depressed prices for farm products forced both the grazier and the arable farmer into dairying, as, apparently, the only rural industry from which a definite and regular income could be derived. This did not apply, of course, to every district, but on country situated conveniently within a butter factory zone, dairying proved a very strong attraction to the cattle man.

Should the export trade in chilled meat develop to the extent anticipated, dairying, no doubt, will be relinquished for beef production on properties obviously better adapted for that purpose.

The statistical position for the year shows a remarkable maintenance of monthly output in butter production from October to April. January was the "peak" month, with churnings aggregating 16,658,557 lb. May and June totals reveal the usual winter decline, but the output for both months was much greater than for the corresponding period of the previous year.

Systematic grading, followed up by investigatory work, had a definite influence in solving the ordinary dairying difficulties of the year. Dairy technology—an important branch of the departmental organisation—performs a service of which the dairy farmer is becoming more and more appreciative.

A considerable improvement in manufacture, sustained throughout the greater part of the year is indicated in the records of the grading officers. A variation of quality is, however, too frequent in some factories; while other factories, it is regrettable to report, failed to attain that high standard of quality which can be achieved through complete co-operation between the producer and the butter-maker.

The production of a uniform high-grade butter is demanded as an essential condition of success in our export trade.

Departmental investigations indicate definitely that the highest grade butter can be produced in Queensland. Nothing less than the best, therefore, should be a guiding maxim. Frequent and regular cream deliveries and careful, systematic grading are obvious means by which that maxim may be applied.

There are, admittedly, often many difficulties in the way of the regular delivery of high-grade cream, especially in seasons of excessive rainfall, such as the one now reviewed. Boggy yards, waterlogged fields, and flooded watercourses are usual experiences in such a year, and they all have a direct bearing on the quality of the product, either in respect of greatly increased bacterial content or delayed deliveries at the factory.

Moisture content of the butter manufactured approximated the legal standard more closely than in previous years.

It is pleasing to report a general improvement in the character and texture of our butter; and from the manufacturing aspect the position is satisfactory.

Apart from seasonal influences, grading results disclosed that defects in cheese manufacture were attributable to the use of milk below first grade. The serious decline in cheese values on the world's markets, no doubt, influenced some relaxation in respect of factory standards. It should not be necessary, however, to stress the point that quality in the merchantable product is of major importance, especially in the face of the keen competition that exists on the oversea markets.

Approximately 76 per cent. of the butter production of the State was exported to the British market. London prices determine world parity, and during the period under review the price received for Queensland butter was the lowest for forty years. Producers had to supply a depressed market throughout the year, and cream prices had to be reduced accordingly.

The cheese output for the year was 13,881,766 lb., as against 13,079,996 lb. in 1932-33. Cheese exports overseas totalled 7,425,067 lb., and interstate 3,065,510 lb. Domestic sales absorbed 2,408,643 lb., while the balance of the year's production remains in cold storage.

There was a decided improvement in the testing methods, so essential for the control of butter composition and quality. Acidity and moisture tests and the neutralising process are all receiving closer attention in many of the factories.

An investigation of butter-fat losses in buttermilk was initiated in the course of the year. This inquiry is of considerable importance to the industry, and more than half the factories are co-operating with the Department in this work. It is intended to continue this investigation over at least a twelve-monthly period, so that all the influencing factors may be determined and correlated.

An investigation into the keeping qualities of butters is also in progress. A study of certain defects in butter—cheesy flavour, cooked flavour, and surface taint—is also being made, and progress results are given in an incorporated report.

The amended system of factory accounts, instituted by the Department, is now in operation throughout the State, and is working most satisfactorily.

A survey of the balance-sheets was continued, and it reveals that for the year ended 30th June, 1933, the average cost of manufacture and marketing per lb. was 3·91d. Suppliers numbered 24,048; and the amount distributed among them for that year was £3,479,496. Trade and wage payments amounted to £1,139,126. The average price per lb. was 8·89d.

The cost of production decreased by ·22d. over the year. The return to suppliers was exceptionally low, being 2·77d. less than that of 1932. Marked depression overseas was responsible for the decline. It is hoped that through the operation of the Australian Dairy Stabilisation Scheme the position will improve materially in the coming year.

Herd-testing made remarkable progress during the year, largely through the co-operation of most of the butter and cheese factories. The present scheme, inaugurated in the 1932-33 season, has had a full year's trial, and, generally, it has proved very successful. No fewer than 982 herds, representing 29,521 cows, were submitted to test. Unfortunately, several large dairy associations have shown no disposition to co-operate with the Department in this movement.

From a study of the Senior Herd Tester's records the following interesting facts have been adduced:—Darling Downs herds led in average production per cow with a return of 186 lb. butter-fat. (This return was considerably below the figures for previous years, and the reduction is due to the fact that about 200 new unimproved herds were submitted on the Downs.) Moreton and Burnett districts were equal with a return of 159 lb. per cow; while the returns from Wide Bay and the Central district were 147 lb. and 139 lb. respectively. The Atherton Tableland return from seventeen herds submitted was 185 lb. per cow.

Only four cows passed the 400 lb. butter-fat mark, three from the Downs and one from Atherton. The highest producer—an Allora cow—gave 11,826 lb. of milk and 416 lb. of butter-fat in a lactation period of 273 days.

The highest producing herd is in the Pittsworth district, and its returns for the year show that twenty-two cows averaged 287 lb. of butter-fat for the lactation period. Among the larger herds the best return came from the Oakey district—viz., seventy-nine cows, averaging 223 lb. butter-fat per cow.

Other interesting herd-testing data are contained in the incorporated report of the Senior Herd Tester, from which the obvious deduction is that while herd-testing has always paid dairying cannot pay, under present conditions, without herd-testing.

Generally, breeders of stud dairy cattle are now paying more attention to production recording than at any other time.

The establishment of a Dairy Research Branch within the Department, to be competently staffed and suitably equipped, has been decided on. This projected extension is largely the outcome of decisions of the 1934 Conference of Ministers of Agriculture, bearing directly on the improvement in quality of Australian butter.

With this extension of our dairy research work will follow, naturally, a survey of the manufacturing side of the industry; and a concentration of effort to correlate bacteriological and chemical properties with the keeping quality of butter and cheese.

The formation of a Dairy Research Committee, on which the Butter Board will be represented directly, is in contemplation.

The formation of Dairy Committees within Local Producers' Associations, to which reference was made in my last report, has proved a very successful innovation. Under the system devised the Department is able to offer to dairy farmers a valuable extension service for instructional purposes and the dissemination of technical information. Dairy Committees now actualy functioning number 126. Intensive courses of instruction in animal husbandry at the Animal Health Station, Yeerongpilly, are included among the activities of these committees; and four schools attended by an aggregate of forty-seven dairy leaders were conducted in the course of the year.

To meet the needs of dairy farmers in respect of the control of stock diseases and other veterinary services, a Veterinary Section has been added to the organisation of the Dairy Branch.

A certified milk system has also been inaugurated in the metropolitan area.

There are now fifty-six modern factories operating in Queensland, practically all co-operative with farmer directorates. Cheese factories number sixty.

The marketing of dairy products during the year is dealt with fully in my report as Director of Marketing.

Detailed reports of the general work of the Dairy Branch—covering herd-testing and recording, butter and cheese grading, chemistry, bacteriology, and factory accountancy—are included among the sectional summaries embodied in this general report.

PIG RAISING.

Our annual production of bacon and hams—approximately 20,000,000 lb.—now equals that of New South Wales and considerably exceeds that of Victoria.

Slaughterings for all purposes approximated 400,000 head.

The legislation passed in the last session of Parliament has placed the industry on a more stable basis. A system of grading and bonus payments for best quality carcasses has been applied, and, generally, the new law relating to the industry, as anticipated, is having a very beneficial effect.

The departmental scheme devised for improving breeds of pigs, and under which farmers have been enabled to buy approved boars on the basis of 50 per cent. refund of the actual purchase money, is proving successful.

Farmers in increasing number are taking advantage of the liberal concessions offered to them, to the general betterment of the industry.

The outlook for the export trade in frozen pork continues to be encouraging. Weekly quotation averages at Smithfield show a steady improvement over the last few years. Prices for the current year, to the end of June, averaged 5·63d., as against 5·31d. in 1933 and 5·13d. in 1932.

Queensland contributes more than half of the total Commonwealth export of frozen pork carcasses. The apparent soundness of the present export position indicates that producers would be well advised to engage more extensively in this trade.

The pig-feeding tests, mentioned in my last report, were continued throughout the year, and farmers are appreciative of the advantages derived through this and other research work instituted in the course of the year at the Animal Health Station.

The industry continues to progress in the Far North, where there is a firming inquiry for pure-bred stock. The natural result is an improvement in the type and quality of the pigs marketed. The health of pigs in that part of the State was never better.

POULTRY.

Poultry raising continues its steady advance, although the expansion of the industry brings its own marketing problems in its train. Poultry farmers are, however, alive to the necessity for the most economic production. This aspect is dealt with fully further on in this report.

The continued development of the industry is due largely to cheaper fowl feeds, improved facilities, and more efficient flock management.

The domestic demand for eggs was over-supplied to the extent of about 1,750,000 dozen, so the importance of the export trade is obvious.

Attention is being given to the breeding of a dual-purpose bird as the basis of trade in table poultry. In this connection a series of experiments at the Animal Health Station has been planned.

Feeding tests were carried out at the Station, and the results are being applied to the general benefit of the industry. Nutritional experiments are being conducted with both growing and laying stock from which much useful information has already been obtained and applied in daily feeding practice by the commercial poultry farmer.

At the Animal Health Station, diseases in poultry are being investigated and breeders are co-operating in this work by sending specimens for diagnosis.

Egg production for the calendar year (1933), *vide* the Registrar-General's computation, was 5,523,784 dozen, valued at £251,387, as compared with 5,515,981 dozen, valued at £251,857 in 1932.

BEE-KEEPING.

Honey production for the calendar year (1933) amounted to 610,330 lb., as against 531,075 lb. for the previous year. Beekeepers number 553, compared with 528 in 1932 and 551 in 1931. Productive hives number 10,955, and non-productive 3,394. The average honey return from the productive hives was 56 lb. Beeswax sales aggregated 8,727 lb.

ECONOMIC BOTANY.

Native grasses and fodders were the main subjects of research studies and field investigation in the course of the year.

Through the publicity given to the willingness of the Government Botanist and the Assitant Botanist to report on any specimens submitted, this service is availed of widely by pastoralists and farmers. Included in its scope was the identification and control and the devising of means of eradication where practicable, of plants suspected of being poisonous to stock.

In field work it was a particularly busy year, and investigations covered collections of botanical specimens, forest nomenclature for the convenience of tourists on the islands of the Great Barrier Reef, and botanical surveys of grazing areas on which losses of stock had occurred.

Visits in midsummer and autumn were made to a property in the Goondiwindi district, on country similar to much of the South-Western Darling Downs, for the purpose of observing cultivation experiments with Mitchell and Flinders grasses; as well as making a general collection of local grasses and pasture plants. The experiments have shown very definitely that both the grasses named will do exceptionally well in that part of the Goondiwindi district. The obvious question arises as to whether these grasses can stand the heavy stocking conditions on the closely settled Downs country. Points already brought out in the experiments however, are the definite possibilities of Mitchell grass under cultivation, and of Flinders grass as a hay and forage crop. The experiments are being continued with the idea of increasing the seed or grain yield of the Mitchell grasses. The improvement of these valuable Western grasses, which are of such importance as factors in our pastoral economy opens up possibilities of a line of profitable investigation in the near future.

The lag in the re-growth of pastures on the Western Mitchell grass country, after the breaking of protracted dry periods, was also investigated in the course of the year. The information obtained has added considerably to our knowledge of the palatability and general usefulness of many of our Western grasses and herbage plants.

Detailed notes on some of the more important plants suspected of being poisonous to stock are included in the general record of the work of the Botanical Branch for the year.

ECONOMIC ENTOMOLOGY AND PLANT PATHOLOGY.

A large number of research projects engaged the attention of the entomological and pathological staff in the course of the departmental year. Among the more important projects were blue mould in tobacco codlin moth and fruit fly, cabbage moth, citrus scales, pinhole borers in walnut bean, pineapple wilt, and corn-ear worm.

Blue Mould of Tobacco.—Blue mould of tobacco has long been recognised as one of the most serious adverse factors limiting the establishment of tobacco production in Australia. It is, therefore, pleasing to be able to record that two sprays—namely, copper emulsion and colloidal copper—have been introduced by one of the departmental pathologists, and their regular and intelligent application renders possible the production of tobacco seedlings, even in the presence of a major epidemic of blue mould. The introduction of these sprays is regarded as the most outstanding achievement in tobacco research in Australia during the year.

Codling Moth and Fruit Fly.—Non-arsenical sprays for the control of codlin moth have been the subject of extensive experiments by the entomologist stationed in the Stanthorpe district, and as a result thereof it would appear possible to control codlin moth without the use of arsenicals. The spray which has so far given the best results is a mixture of nicotine sulphate and white oil. In subsidiary experiments carried out last season this spray was also demonstrated to be a very promising fruit fly repellant in so far as apples are concerned.

Cabbage Moth.—Experiments conducted in the neighbourhood of Brisbane also demonstrated that arsenical sprays are not necessary for the control of the common cabbage moth. The experiments showed that quite satisfactory control can be achieved by the use of Derris sprays.

Citrus Scales.—The departmental year witnessed the completion of a very comprehensive investigation of Queensland citrus scale insects and of the means whereby they can be controlled. This work was carried out at the Nambour Entomological Field Station, and, as a result thereof, information has been made available covering practically every question a citrus grower may have to ask with respect to the control of scale insects in the various citrus-producing districts of Queensland.

Pinhole Borers in Walnut Bean.—A different type of problem was constituted by the heavy incidence of borers in walnut bean logs utilised in North Queensland for the preparation of valuable veneers. The work on this project was carried out at the Atherton Field Station, and as a result of the information obtained with respect to the habits of the pinhole borers it is now possible to vary the handling of walnut bean logs in such a way as to obviate most of the loss previously sustained.

Pineapple Wilt.—Very appreciable progress has been made in the pineapple wilt investigation, and the pathologist responsible for that project has demonstrated the possibility of eliminating the alkaline soil reaction which is so conducive to the spread of wilt. Numerous field experimental plots have shown that the application of sulphur to a fertile soil will restore the acidity necessary to the welfare of the pineapple plant. Where the fertility has been materially reduced, however, the addition of organic matter is required to assist in the elimination of the factors favourable to wilt development.

Corn-ear Worm.—Another project in which very appreciable progress was made during 1933-34 was in the control of corn-ear worm in the cotton areas of the Callide Valley. The year's observations indicate that a certain association of weeds in and close to the cotton fields is the factor mainly responsible for the corn-ear worm epidemics in the Callide Valley. This being so, attention to certain cultural practices is a very important factor in the control of corn-ear worm in the Callide.

Publications issued by this branch in the course of the year numbered twenty-eight, and included bulletins, pamphlets, and advisory leaflets. In addition much other advisory matter was published in and through the courtesy of the daily press. Many public lectures were also delivered by members of the scientific staff. Advisory work continues to increase in volume.

The work done along other important lines of investigation and control of vegetable pests and diseases is described in accompanying accounts of our research activities, both fundamental and applied.

AGRICULTURAL CHEMISTRY.

The analytical work of the Department increased greatly during the year. Chemical analyses numbered 6,797, as compared with 6,046 for the previous year. In addition, 7,422 samples of glassware were tested, as against 5,635 for the 1932-33 period.

An increased number of viscera and toxicological samples were submitted.

Results of routine soil and other analyses and dipping fluid tests are set out in appended tables. Considerable soil investigational work was also undertaken by the Chemist and his staff, in the way of partial analysis for the purpose of ascertaining if there is any correlation with a particular soil condition and the physiological and pathological conditions of plants.

The most outstanding analytical work done by this branch was that performed in collaboration with officers of other branches of the Department. This excellent team work is characteristic of the Department as a whole. As an illustration of its importance, over 600 samples of soil submitted by the Cotton Branch for examination for the determination of soil nitrates and soil carbon were analysed; likewise 250 soil samples were examined in connection with the pineapple wilt investigation. In all, over 1,000 soil samples were analysed under this system of inter-branch collaboration.

Fuller analyses were made of citrus fruit samples, to the number of 108, sent in by growers to assist in the determination of citrus maturity standards.

Samples of locally manufactured casein, on analysis, compared favourably with that produced elsewhere.

Other analytical work of the branch related to the activities of the Pasture Improvement Committee, the Pig Nutritional Committee, the Experimentation Committee, and the Veterinary Medicines Board.

Complete details of the year's work are tabulated among the appendices hereto.

SEEDS, STOCK FOODS, FERTILIZERS, PEST DESTROYERS, AND VETERINARY MEDICINES.

The administration of the Veterinary Medicines Act, passed by Parliament last session, was undertaken by the Pure Seeds section of the Department in the course of the year.

Details of the general work of this section for the period under review are set out in a comprehensive series of tables and explanatory text contained in another part of this report.

LIVE STOCK.

Preliminary stock statistics as at 1st January show a decrease for the year of 17,753 horses and 2,057,280 sheep, and an increase of 244,293 cattle. Estimated totals as at 1st January (actual figures for 1933 are bracketed after each total) were:—Horses, 434,733 (452,486); cattle, 5,779,358 (5,535,065); sheep, 19,255,585 (21,312,865).

Although the estimated number of sheep shows such a serious decline as compared with the actual figures as at 1st January 1933, the decrease is more apparent than real. When the records of the calendar year, ending 31st December next, are compiled, it will probably be found that the difference has been fully made up, especially in view of the favourable seasonal conditions experienced in most of our pastoral country since the beginning of this year.

Seasonal conditions ranged from average to good, but it will take a succession of good years to restore the natural pastures over large tracts of the western sheep country and bring their stock-carrying capacity up to normal. In most districts, however, grass, even if dry, is plentiful, and with stock in strong condition they should winter well.

The condition of flocks and herds is better than at the corresponding period of last year.

The market for horses remains firm, especially for draught classes. Young stock from twelve to eighteen months old are in firming demand. Heavy, unbroken three-year-olds are bringing from £28 to £30; and heavy, broken-in farm horses from four to five years old are realising from £35 to £40 at auction.

It is anticipated that the relevant provisions of the Diseases in Stock Acts, as applied, will cause the destruction of nondescript horses and brumbies, with the ultimate result that a better class of horse will be bred for general purposes. The activities of the Stallion Boards are also having a beneficial influence on the horse-breeding industry.

Trans-border crossings for the year were 6,129 horses to New South Wales and 2,034 to South Australia. Horses exported overseas numbered 1,306, compared with the previous year's shipments of 940.

In the past, stock medicines have been sold indiscriminately, but through the operations of "*The Veterinary Medicines Act of* 1933" the interests of stockowners are safeguarded in this respect.

In the tick-cleansing areas good work was accomplished during the year, and the usefulness of these areas as buffer zones was again amply demonstrated.

Success attended the experimental shipments of chilled beef to the United Kingdom, and prices realised in London averaged £4 per carcase more than for frozen meat. Reports indicate that several meat export works are installing facilities in anticipation of a progressive improvement in the chilled meat trade. Should this trade develop to the extent expected, store cattle will naturally be in increased and constant demand. In Queensland there are considerable areas of fattening country available, apart from the areas now used for cattle-raising, and farmers on coastal lands will have an opportunity of using fodder crops for fattening and topping-off suitable steers.

Unfortunately, wholesale prices for beef in the British markets have not advanced in line with those of other meat products.

The development of the chilled beef trade is of outstanding importance to the pastoral industry. For the past two years, studies relating to the prolonged storage of chilled beef, by scientific workers of the Council for Scientific and Industrial Research, have been in progress in the research laboratories of the Queensland Meat Industry Board at the Brisbane Abattoir. In order to test the results of experimental work as it progressed, the Board prepared a section of its slaughtering, chilling, and loading facilities on a commercial scale to allow for a series of experimental shipments this year.

The first shipment, comprising 604 quarters, was consigned in February last. After a voyage of thirty-nine days from Brisbane, the beef arrived in excellent condition, and was placed on the wholesale market in London forty-four days after slaughter. No visible bacterial, fungoid, or yeast growth could be detected, and the "bloom" of the beef remained without any appreciable sign of deterioration.

Up to the end of June, four shipments, aggregating 289 tons, had been made. By the end of December it is anticipated that a further 1,500 tons will have been consigned to the United Kingdom.

From the results of its scientific and commercial experiments, the Meat Industry Board has expressed its confidence that an export trade in chilled beef can be established and conducted successfully.

The results from the technique employed, both in preparation and transportation, have shown conclusively (*vide* a statement issued by the Board) that with a voyage period of forty-five days chilled beef can be landed in England in a satisfactory condition.

The Board reports that from the standpoint of "bloom"—the natural colour and brightness of beef—it has been found that some deterioration generally occurs when the voyage period extends beyond forty-two days. A more detailed study of the factors causing loss of "bloom" in commercial shipments is accordingly being made by the Board, and when, as the result of more experience, improvements can be effected, such minor defects will, undoubtedly, be overcome.

The present situation respecting the export of chilled beef from Queensland is that meat-exporting companies are planning necessary alterations to their works, while shipowners are providing for facilities for the carriage of greatly increased cargoes. The Board regards it as a reasonable expectation, therefore, that next year provision will be made for the shipment of from 15,000 to 20,000 tons of chilled beef from Queensland, and that this trade will continue to expand from then on.

With that expansion regularity of supply must follow; and, although that is primarily a matter for the producers, all sections of the live-stock industry are so interwoven that the fullest measure of co-operation is demanded from all the interests concerned.

Widespread interest was taken in the annual carcase competitions arranged by the Meat Industry Board. The conditions stipulate that exhibits should comprise ten head of steers, lambs, or pigs; the best six carcases to be selected. Dressed carcase weights were fixed as follows:—Beef, 580 to 700 lb.; lamb, not exceeding 34 lb.; pork, 60 to 80 lb. A purebred Aberdeen Angus group won the beef competition. The age of the animals was 2 years and 7 months, and they had been fed on natural grasses for two years, and thereafter on Wimmera rye and lucerne; their average weight was 678 lb. The lamb carcase competition was awarded to a Southdown-Corriedale group, aged 7 weeks, and of an average weight of 33·1 lb. A Middle York group, fed on dry feed with a balanced ration, gained the award in the pig carcase competition at an age of 18 weeks and an average weight of 69·7 lb.

Trade displays, notably that in the Meat Hall at the Brisbane Exhibition, are of extreme importance to producers and of great educational value to consumers in respect to quality and as an illustration of the wide range of animal products and commercial derivatives.

In the course of the year new meatworks were established by private enterprise, assisted by the Government, at Karumba, in the Gulf country, near the mouth of the Norman River. This undertaking will serve Gulf cattlemen, who will thus be able to avoid long droving distances and consequent wastage of condition in their stock en route.

It is gratifying to report that the buffalo fly has not spread to any appreciable extent during the year. Every precaution is being taken to prevent the spread of the pest by restricting stock movements and the spraying of stock from infested country.

Metropolitan fat stock yardings at Cannon Hill included:—Beef cattle, 126,509; vealers, 26,495; sheep, 470,072; lambs, 49,736; pigs, 37,776. The total of stock sold during the year ended 30th June, 1934, was 710,588, as compared with 902,864 in 1933.

Average values were:—

Cattle—

Bullocks, per cental, 19s. 10d.; per head, £5 17s. 8d.

Cows, per cental, 17s. 10d.; per head, £4 1s. 1d.

Vealers (suckers), per lb., 2·2d.; per head, 7s. 6d.

Vealers (60 to 80 lb.), per head, 12s. to 15s.

Sheep—

Wethers, per lb., 3·44d.

Ewes, per lb., 2·94d.

Lambs, per lb., 5·74d.; per head, 12s.

Pigs—

Porkers and baconers, per lb., 5d.; per head, £2 1s. 8d.

Metropolitan killings (Brisbane Abattoir) were:—

Bullocks, 47,406; cows, 46,313; calves, 48,012; sheep, 441,792; swine, 35,364.

Constant supervision has been made in respect of slaughtering and meat distribution. Shop standards continue to improve. Generally, the butchering trade has shown marked activity, and the hygienic handling of meat is now recognised more widely in practice. Inspections numbered 9,819 for the year. Shop and vehicle registrations for the year in the metropolitan area totalled:—Shops, 291 (previous year, 272); vehicles (motor and other), 402 (367); cutting carts, 95 (63).

Bacon factory slaughterings were:—Pigs, 250,688, compared with 237,956 in the previous year. Condemnations were (figures for the previous year in parentheses):—Carcases, 2,720 (2,968); heads, 14,702 (13,635). Cattle—Bullocks, 3,575; cows, 7,198; calves, 1,609; sheep, 16.

The return of stock slaughtered under the supervision of Police Acting Inspectors in country districts is as follows:—Bullocks, 38,017; cows, 46,240; calves, 2,907; sheep, 119,520; swine, 17,232.

Brands registrations and transfers increased substantially over those of the previous year. The Brands Directory, the publication of which had been suspended for four years on account of the financial stringency, was revised, and a new edition is about to be issued.

SHEEP AND WOOL.

Conditions in the pastoral industry were generally better than in the previous year. Winter rains were fairly general over the sheep country, and were a happy prelude to a real wet season over most of our purely grazing lands. Copious rains and mild temperatures marked the summer, and these conditions naturally favoured flock and herd increase practically all over the State, although some districts, unfortunately, missed the heavier falls and so had to endure yet another dry season.

Routine work in the Sheep and Wool Section covered the usual range in flock and pasture management, and instruction in the handling and preparation of wool for market. In this work was included the prevention and treatment of parasitic attack, a service greatly appreciated by the sheep farmer.

The good season was favourable for blowfly attack, which was more prevalent and severe than in the previous drier years. A lamb-marking and blowfly specific, which has proved economical, durable, and effective, was prescribed and compounded by the Department with satisfactory results. The formula has been duly published for the benefit of the graziers and others concerned.

A scheme for fostering fat-lamb production was inaugurated in the course of the year, and it has already given this industry a much-needed impetus. Under the scheme rams of different types of British breeds were purchased from well-known stud breeders and distributed among farmers already running sheep and who had a certain area of land under cultivation. This movement is definitely succeeding.

From the statistics already given, it will be observed that the marketing of mutton and lamb has increased substantially. Other States are experiencing a similar tendency in meat marketings. The lower wool values in recent years are, undoubtedly, responsible for the more than normal disposal of a marketable surplus of sheep and lambs.

The time has arrived when a more regular export lamb trade should be definitely established. In South-eastern Queensland particularly, conditions are favourable for breeding and fattening lambs, especially crossbreds, on a far larger scale than has hitherto been attempted.

It is very pleasing to record an increase in the average price received for wool sold during the year. Withdrawals at the May sales were heavy, however, and buying became so restricted and erratic that it was thought to be in the best interests of the industry to postpone the double sales in June in order to sustain prices. At present, however, the outlook for the attainment of 1933 values is not very promising, although the wool situation does not indicate a serious slump in prices.

During the wool-selling season, 359,732 bales were catalogued, and 353,036 were sold, realising £7,453,649. The carry-over for the Commonwealth at the end of June was 213,572 bales, Queensland's quota being 102,097 bales. This State thus holds nearly half the total carry-over, due to the postponement of the double sales in June.

The quantity of wool handled under the Farmers' Wool Realisation Scheme was slightly less than the previous year. The types, too, were not as good as formerly; this was due, no doubt, to a proportion of the wool coming from districts unsuitable for sheep. Low prices during the three previous seasons probably accounted for the decline in the volume of the general consignments to the departmental wool room. Unprofitable flocks, in many instances, went to the butcher. The departmental brand —DA in diamond—covering reclassified wools was sought after consistently on the selling floor.

The system under which wool was received for classification and marketing was altered in the course of the year to embrace butts, bags, crosbred, and wool from British breeds. It is anticipated that this alteration will result in a considerable expansion of the scheme. Under the scheme 56,203 lb. of farmers' wool was sold to advantage during the season.

Extended reference to the activities of the Stock Branch is made in another part of this report.

ANIMAL HEALTH STATION.

It was a year of considerable expansion of activities at the Animal Health Station.

Mastitis appears to have become more prevalent among our dairy herds, judging by the large number of cows under treatment with vaccine prepared and supplied from the station. Recognised means of prevention were disseminated widely by advisory leaflets and otherwise. Further investigations into the cause of the disorder are proceeding.

The prevention and treatment of other diseases of stock are subjects of continual study at the Station.

Over 80,000 doses for inoculation against pleuro-pneumonia were issued.

Several outbreaks of blackleg occurred. The preventive value of the blackleg vaccine made at the Station is appreciated generally by cattlemen as a useful factor in the control of this disease.

Among cattle inoculated against tick fever, the percentage of losses was very small—a fraction of 1 per cent., under ordinary paddock conditions.

The main problem in parasitology was an investigation of the large roundworm of pigs, *Ascaris lumbricoides*. This parasite proved to be of great economic importance, infestations being fairly frequent and resulting in unthrifty young pigs, and considerable mortality. The life history and pathogenicity were studied on experimental animals and, as a result, efficacious treatment and control were obtained.

Another experiment dealt with the use of drugs as monthly treatment against the sheep stomach worm, *Haemonchus contortus*, and is as yet incomplete. In addition, numerous specimens of worm and arthropod parasites were identified and advice given as to their treatment and control.

Contagious abortion also appears to have become wider in its incidence, and energetic measures for preventing its spread are being applied by the Station staff. One of the causes of its wider prevalence is due to lack of effective control among known herds of infected cattle.

The outstanding pathological problems under investigation at the Station relate to pig and poultry diseases and sterility in dairy cattle.

Field investigations of disease problems were continued throughout the year.

The poultry nutritional experiments referred to in my last annual report were continued throughout the year, and the progressive results are contained in another portion of this general review. It has been decided to continue this test for another twelve months. An account of interesting experiments in cockerel and chicken raising is also contained herein.

Pig nutritional experiments were commenced in January last with crosses of our four main breeds—Large White, Middle White, Tamworth, and Berkshire—with the object of determining whether pigs can be raised economically to marketable weights by the substitution of meat meal for the customary milk foods, plus a mineral supplement. An interesting summary of progressive results, together with an account of the general activities of the Station, and the lines of investigation pursued there, is included among the following sectional reports.

CO-OPERATIVE ASSOCIATIONS.

Thirteen additional associations have been registered, making a total of 183 associations and one federation registered under "*The Primary Producers' Co-operative Associations Acts*, 1923 *to* 1926." Some exemptions from the provisions of the Acts have been granted, and 166 auditors have been licensed thereunder.

ORGANISED MARKETING.

The number of pool boards now functioning in Queensland is 15.

At the request of the producers of plywood and veneer, a pool was formed in connection with those commodities, and the board constituted in regard thereto was authorised to exercise marketing functions.

It is generally conceded that matters associated the the production of particular commodities are no longer the principal agricultural problems of to-day. The marketing of commodities at prices payable to the producer is the outstanding problem. Throughout the year the Marketing Branch obtained particulars of the prices realised on the different markets, and it was found that organised collective marketing provides a means whereby an attack can be made on the difficulties of profitable disposal of primary products.

The year's operations of the several pools and commodity boards are described in detail in my report as Director of Marketing.

In the course of the year the Commonwealth Government made available the sum of £76,455 to Queensland wheatgrowers under "*The Wheat Growers' Relief Act of* 1933," and the Director of Marketing was appointed the State Authority to distribute this amount on behalf of the Commonwealth Government.

PUBLICITY BRANCH.

An efficient and effective service was maintained by the Publicity Branch during the year.

The *Queensland Agricultural Journal* has now completed its thirty-seventh year. As the official journal of the Department it covers a wide range of departmental activities from month to month. As a record of research and rural development, and as a vehicle of technical and topical information, it has proved of definite value to those engaged in primary production. Its circulation is large and continues to increase steadily, and its usefulness is assured by regular contributions, many of which contain the results of original research, from members of the staff of the Department engaged in directive, educative, and specialised work.

Other publications issued during the year included a large number of bulletins, pamphlets, and advisory leaflets containing authoritative, scientific, and technical information.

The radio lecture service was continued in co-operation with the Australian Broadcasting Commission. Many evidences of the popularity of this service, which covered over one hundred broadcast talks on seasonal and topical subjects, were received from a large farmer audience in the course of the period under review.

Seasonal articles and regulatory announcements were supplied regularly to the public Press.

The photographic services of the Branch included the distribution of suitable prints and half-tone blocks of rural subjects to various Australian and overseas publications. This service was also extended to the Queensland Tourist Bureau.

By these means and through the courteous and ready co-operation of the Press, extensive and valuable publicity for the State and its primary industries was obtained.

In addition, numerous addresses on departmental activities and rural economy were delivered to various public and educational bodies.

LIBRARY.

The usefulness of the central reference library, especially to research students, was further demonstrated during the year. Monthly accession lists were distributed, and in this way those concerned were kept in contact with current thought, recent research, and technical progress in matters appertaining to the land and its industries.

A valuable exchange service, through which publications on agricultural and kindred subjects were received regularly from many countries, was also well maintained throughout the year.

CONCLUSION.

If viewed solely from the production standpoint, the year was a successful one in practically every branch of rural industry. This result was due to favourable seasonal circumstances, a steady improvement in farming efficiency, and higher standards of animal husbandry which are becoming more evident every year.

The administrative, advisory, research, and regulatory functions of the Department have been maintained in accordance with the State's broad and comprehensive policy of sound rural development.

The interval between the discovery and application of new knowledge of practical value has been reduced by close correlation of the research and advisory services in respect of the varied and extensive activities of the Department.

The departmental year has been marked, too, with a sincere, sustained, and, to some extent at least, successful endeavour to surmount the perplexities of the economic position. Economically, the agricultural situation is still very serious. The price position, in the dairy and fruit industries particularly, is far from satisfactory. Improved wool values have had, however, a stimulating effect.

Although marketing difficulties continue—difficulties that shall certainly be increased should a policy of further restriction of exports and regulation of crop acreages be enforced—there is some evidence that the worst of the depression, which has affected agriculture in common with other industries so seriously in recent years, has passed.

Every effort to improve the marketing position of all primary products, in the best way possible in the circumstances, was made during the past year. In this connection, it is repeated that Queensland farmers are fortunate in their system of organised marketing which has proved, during recent difficult years, the best protection that they could have.

The increase in market values necessary to make the farming business reasonably profitable is really small, in relation to the margin that exists between the prices handed to the producer by the distributor and those which the public has to pay.

The dominant agricultural problem of the day is the control of surplus production. This problem is definitely a national one, and is not the concern of agriculture alone.

Administrative responsibilities were heavy during the year, and I have much pleasure in reporting that they were discharged by every Branch of the Department with credit to the Service and to the benefit of agriculture and related industries in this State.

The Registrar-General's annual compilation of statistics of agricultural production and livestock in Queensland, and which contains much interesting and valuable information in detail of our rural economy, is appended.

An account of the general activities of the year is contained in the reports of the Director of Agriculture, the Chief Inspector of Stock, the Supervisor of Dairying, the Director of the Animal Health Station, the Director of Cotton Culture, the Director of Fruit Culture, the Chief Entomologist, the Government Botanist, the Agricultural Chemist, the Officer in Charge of the Seeds, Fertilizers, Stock Foods, Pest Destroyers and Veterinary Medicines Investigation Branch, and the Director of Marketing—all of which are incorporated herein.

E. Graham

Under Secretary and Director of Marketing.

REPORT OF THE DIRECTOR OF AGRICULTURE.

I have the honour to submit my report for the year ended 30th June, 1934.

STAFF CHANGES.

My appointment as Director of Agriculture dates from 5th October, 1933, vice Mr. G. B. Brooks, who had attained his 65th year, but who was retained as Senior Instructor in Agriculture in the Central District for the purpose of carrying out special work in connection with tobacco.

Consequential staff changes were the transfer of Mr. C. S. Clydesdale, Senior Instructor in Agriculture, to Townsville, and Mr. N. A. R. Pollock, Senior Instructor in Agriculture, to Toowoomba.

AGRICULTURAL DEVELOPMENT.

Pursuant to the consummation of the agreement between the Federal Government and the various States of the Commonwealth, whereby certain moneys were made available for the purpose of fostering the tobacco industry by providing for additional instructors and increased experimental work in connection with tobacco production, two additional instructors and two cadets were appointed and have been stationed at Mareeba, Mackay, Townsville, and Dimbulah respectively, and are working under the senior officers in charge of these tobacco areas.

Mr. W. J. Cartmill, Analyst, who was seconded to this Branch, was placed in charge of fertilizer experiments in the Dimbulah and Mareeba districts. His investigations cover a full range of the tobacco soils of these districts.

Meteorological returns show that 1933-34 can justly claim to be regarded as a "wet" year. Commencing with the month of July, records of the rainfall experienced throughout the wheat areas of the Darling Downs and Maranoa were well above the average.

Practically the bulk of the areas sown with wheat did not germinate until early in July, and as the result of consistent monthly precipitations made satisfactory growths. Only Warwick and Clifton recorded rainfall below the average for the months of August and October.

The heavy rainfall experienced throughout the months of October, November, and December, over the whole of the Darling Downs area was responsible for delay in harvesting operations and consequent depreciation of the resultant grain. The crop, which at one period was regarded as a probable record yield, ultimately resulted in a 3,943,960 bushel delivery to the Wheat Board. Obviously, under the conditions in which the crop was harvested, the quality of the grain produced could not be expected to be equal to that harvested under more favourable conditions, and more or less depreciation during storage is inevitable.

Similarly, the rainfall recorded in the recognised tobacco-producing areas was greatly in excess of requirements, and a perusal of the following records will show the unfavourable conditions with which the tobacco producer had to contend practically throughout the growing season:—

1933.	Mareeba.	Townsville.	Mackay.	Miriam Vale.	Landsborough.	Caboolture.	Texas.
July	30	127	1,008	901	417	439	280
Average	31	60	159	159	227	209	182
August	199	184	193	119	107	128	211
Average	16	45	103	123	192	161	137
September	77	92	154	214	504	316	151
Average	19	80	157	154	230	187	162
October	166	120	145	596	599	436	404
Average	58	139	167	234	279	248	215
November	692	586	1,365	791	1,062	830	246
Average	125	182	299	272	392	339	233
December	840	1,203	575	812	1,094	1,229	299
Average	439	565	729	581	681	514	310
January	1,350	1,271	538	406	568	444	266
Average	948	1,111	1,448	1,003	1,089	772	332
February	1,397	1,406	1,176	2,657	1,588	1,695	284
Average	737	1,111	1,139	840	1,080	774	258
March	1,451	85	647	43	444	430	60
Average	696	729	1,181	497	932	755	226
April	267	169	302	636	1,522	1,619	289
Average	272	347	1,237	326	610	441	155
May	62	24	374	124	498	289	35
Average	60	130	371	205	433	281	159
Total to 31st May	6,531	5,267	6,477	7,299	8,403	7,854	2,394
Total to 31st May of average rainfall	3,401	4,499	6,990	4,394	6,145	4,681	2,369
Over or under average to 31st May	+3,130	+758	−487	+2,805	+1,258	+3,173	+25

As will be noted, only in the instance of Texas can the rainfall recorded be regarded as normal for the full period.

Due to the unfavourable conditions brought about by excessive rainfall accompanied by humidity, outbreaks of blue mould became general, and those districts which escaped under the more favourable circumstances obtaining during the previous season were, during 1933-34, greatly reduced in area and yield.

The rainfall recorded during the months of October, November, and December (the period during which the tobacco seedlings are usually being raised in the seed-beds) nullified the preventive methods of control of blue mould (*Peronospora* sp.) advocated by the Pathological Branch of this Department. Practically every tobacco-growing area of Queensland suffered more or less. Isolated areas were, in some instances (due to more favourable conditions), able to successfully combat the fungus, and in these instances a very satisfactory class of leaf has been produced.

Results obtained in the Southern Division (south from Bundaberg) proved that under the conditions obtaining during September, October, November, and December, the September sowings were the most satisfactory, and good quality leaf was obtained from such sowings. Later sowings invariably met with disaster, and instances were recorded where eight successive sowings had been wiped out due to the almost continuous rainfall defeating the preventive methods recommended and adopted.

During March, the period of lessened rainfall and consequent improved conditions experienced in the Northern and Central areas, was responsible for a new and vigorous growth. Areas estimated to produce up to 500 lb. of cured leaf per acre eventually reached 700 lb., but at the expense of the quality of leaf. As a result of this new growth the leaf coarsened considerably, making it difficult to colour in the barn unless properly ripe.

Barley.—With a view of improving the quality of Queensland malting barley, this Department introduced pure strains of Spratt's Archer, Plumage Archer, and Selected Winter Archer barleys from Messrs. Gartons Limited, of England. Incidentally, supplies of Spratt Archer were obtained from New Zealand by Mr. Con Bowdler, of Toowoomba, and Plumage Archer was imported by Messrs. Denhams Limited, acting on behalf of the Queensland Barley Board.

Grown under Queensland conditions, these barleys have been somewhat disappointing as regards their malting qualities, but under normal seasonal conditions may show improvement. The demand for seed of these varieties has naturally suffered in consequence, and for the current season at least many growers have reverted to the Chevalier variety.

It was anticipated that the 1933-34 crop of barley, both malting and feed, would be somewhat in excess of Queensland's requirements, and the earlier harvested crops, both as regards yield and quality of samples, tended to confirm that opinion, but the unfavourable weather conditions that delayed what might be termed the mid-season and late harvested crops influenced both yield and quality to the extent that the malting requirements could not be fully met. Obviously the rejected grain that failed to reach malting standards swelled the supplies of feed barley to the detriment of its value, and in view of the low prices ruling for feed wheat and maize, feed barley automatically receded to lower values.

Maize.—Although at one period it was estimated that Queensland would be faced with a bumper crop of maize, conditions which have obtained during the life of the early and late crops have seriously discounted the original estimate.

The early crop throughout the Darling Downs gave a fairly satisfactory return, but the hot, dry spell which occurred during March had a detrimental effect on the late crop. Co-incidentally these conditions applied more or less to the Lockyer, although to a lesser extent.

The coastal areas generally experienced excessive rainfall, and this naturally was reflected in lessened yields. The Southern Burnett, however, has been more fortunate, and yields have been satisfactory practically throughout the whole district.

Quite a lot of maize has been stored on the farms, particularly in the South Burnett district, and is awaiting improvement in the market value of this community.

Wheat.—Fallowing operations in connection with the 1934-1935 wheat crop have been hampered. The passage of heavy harvesting machinery over paddocks which had received copious rains during the harvesting period made subsequent cultivation both difficult and costly, and although some progress was made, considerable areas were untouched up to the end of March, which was a particularly dry month throughout the wheat areas of the State.

Rainfall received during April relieved the position, and areas of early sown wheat were in evidence. Sowings during May and June have been fairly general, but a good soaking rainfall would be welcomed, particularly in the Maranoa, where conditions are somewhat unsatisfactory from a wheatgrower's viewpoint.

Potatoes.—With conditions favourable to fungoid growths the potato-growers of the southern coastal areas experienced heavy losses in their summer potato crops, due to Irish Blight. Lulled into a sense of false security by an absence of a serious outbreak of this disease, growers are apt to neglect the usual protective measures adopted for the prevention of Irish Blight (*Phytophthora infestans*). In view of the fact that practically 100 per cent. of the seed tubers used by potato-growers of this State are imported introduction of the disease, although precautions are taken to prevent such, is not beyond the bounds of possibility. Climatic conditions which obtain in this State are generally favourable to the growth of fungus spores, and where soil infection occurs, as in the case of Irish Blight, not only inconvenience but direct loss is occasioned to the grower.

Canary Seed.—Of late, increased attention has been paid to this crop by Queensland growers, owing to the comparatively high price ruling for this commodity as against recent wheat and maize values, and as a consequence a considerable increase in the area sown with canary seed has taken place. The requirements of the Commonwealth are less than 2,000 tons per annum, and as Southern farmers are inquiring into the potentialities of canary seed as a crop suitable for South Australian conditions, where winter and spring rainfalls are more general than in Queensland, although other conditions are lacking, it would appear that the exercise of caution to prevent excessive over-production cannot be too strongly stressed.

Some years ago, Queensland's production of canary seed reached 3,516 tons, and difficulty was experienced in handling the crop, with the consequent delay in payment of the growers. Three years after, supplies fell considerably below requirements.

Intermediate and Fodder Crops.—Foxtail millets (*Setaria* sp.) and panicum are attractive intermediate crops, which, under favourable conditions, give satisfactory returns for comparatively moderate expenditure incurred in regard to cultivation, seed, and harvesting, in those areas where wheat harvesting machinery is available, consequently both of these crops attract the attention of farmers on the Darling Downs.

At the present moment, a considerable quantity of foxtail millet, yclept "panicum seed" is held by farmers and produce merchants and is a formidable competitor with canary seed, being utilised for mixing with this grain, and consequently exerts a restraining influence on its value.

As foxtail millet seed is confined almost entirely to use as bird food, it would appear that some discretion requires to be exercised by growers who intend to harvest the crop for seed purposes.

Sorghums are perhaps one of the most popular forms of green fodder, and are favoured by dairymen. With the advent of Sudan grass, many of the older established forms of saccharine sorghums fell into disuse. The need of introduction of new and improved varieties of both saccharine and non-saccharine varieties have from time to time been stressed, and in order to give effect to this the necessary action has been taken and several varieties are now under trial.

Pasture Improvement.—Considerable interest has been shown of late in pasture improvement work, and graziers and dairymen are exhibiting a desire to improve the grazing capacity of their properties by the introduction to their pastures of exotic grasses and legumes to augment the native grasses which in many instances have been sadly depleted.

Results which have been obtained under the conditions of rainfall obtaining from July onwards, have perhaps raised hopes regarding the value under Queensland conditions of many of the Trifolium sps. which, under less favourable conditions, may not be realised.

To the State as a whole, however, the interest displayed is a healthy sign of improvement in pasture management, and for that reason alone is welcomed.

Tobacco.—An extensive and comprehensive programme of experimental work in connection with tobacco was mapped out, and although varietal and fertilizer trials were not 100 per cent. effective, due to the ravages of blue mould, gratifying results have been obtained in respect to other experiments, details of which are given in the reports of the Northern, Central, and Southern Senior Instructors in Agriculture.

The following is a programme which was mapped out in connection with tobacco experimental work:—

Variety Trials—
1 arranged for at Beerburrum.
2 arranged for at Miriam Vale.
1 arranged for at Byfield.
1 arranged for at Koumala.
1 arranged for at Sarina.
1 arranged for at Dunwold
1 arranged for at Bowen.
1 arranged for at Inkerman.
2 arranged for at Hervey's Range.
1 arranged for at Woodstock.

Fertilizer Trials—
1 arranged for at Inglewood.
1 arranged for at Texas.
1 arranged for at Byfield.
1 arranged for at Miriam Vale.
1 arranged for at Koumala.
1 arranged for at Sarina.
1 arranged for at Dunwold.
1 arranged for at Mount Aberdeen.
1 arranged for at Inkerman.
2 arranged for at Hervey's Range.
1 arranged for at Woodstock.
2 arranged for at Koah.
3 arranged for at Chewko.
4 arranged for at Mareeba.
4 arranged for at Dimbulah.

Green Manuring Trials—
1 arranged for at Miriam Vale.
1 arranged for at Sarina.
1 arranged for at Mount Aberdeen.
1 arranged for at Home Hill.
1 arranged for at Charters Towers.
1 arranged for at Woodstock.
1 arranged for at Hervey's Range.
7 arranged for at Dimbulah

Crop Rotational Trials—
4 arranged for at Dimbulah.

Seed Propagation Plots—
1 arranged for at Alpha.
1 arranged for at Gracemere.
2 arranged for at Pentland.

Classification and Nomenclature Plots—
1 arranged for at Harveston.

Other Experimental Plots.

In the Northern Division, eight plots were established in connection with the propagation of grasses to determine their suitability to various districts, two onion trial plots were planted at Evelyn and Koah respectively, and experimental plots were arranged to endeavour to determine the possibilities of tea growing in Queensland.

In the Central Division, experimental plots were established in connection with grasses, hay, and ensilage, onion variety trials, cowpeas, tea, and wheat varietal trial, and seed propagation plots.

In the Southern Division extensive trials were conducted on the Darling Downs in connection with wheatgrowing. They comprised varietal trials, seed propagation plots of new varieties of wheat released for general cultivation from the State Farm, Roma, and rust observation plots. In the same district experimental plots were established to determine the suitability to

Queensland conditions of imported strains of malting barley, and single-row variety trials were conducted with oats and barleys in conjunction with the wheat plots.

Experiments were also arranged for in connection with the following crops:—Potatoes, tung oil, soya beans, buckwheat, tea, various grasses, and legumes.

The Experimentation Committee has arranged plots in connection with pasture grasses and winter green feeds, one of which is in connection with a fat lamb raising experiment.

Comparative trials and seed propagation plots were carried out with several imported strains of sorghums, including dwarf varieties, which can be harvested with wheat harvesting machinery.

The maize seed propagation and improvement work has been continued, fourteen plots being arranged for in different districts, representing an aggregate area of 103 acres.

BEERBURRUM TOBACCO SETTLEMENT.

The Beerburrum Group Settlement, which was designed with the object of establishing unemployed on the land as tobacco growers, encountered during its second year seasonal conditions unfavourable for the tobacco crop. In common with all tobacco-growing areas in the State, the rainfall at critical periods was excessive and conducive to the development of fungoid diseases, notably blue mould.

As a consequence, many of the crops at Beerburrum failed to yield a remunerative return. However, in spite of these disabilities, sufficient leaf of good quality was produced in individual instances to indicate the potentialities of the district for tobacco leaf production.

Up to the date of this report the leaf sold from last season's crop at Beerburrum has averaged in price 2s. per lb., the maximum realisation being 3s. per lb.

Towards the end of the season it had become apparent that some of the settlers were not temperamentally fitted for farming work, and these men were required to leave. At the same time it was decided that the remaining settlers should be given an opportunity to become self-supporting, and with this object in view the control of the settlement has been handed over to the Rural Assistance Board, the settlers to be granted a special lease of their blocks, and additional areas have been allocated where it was considered necessary.

The chosen settlers were given the option of leaving or continuing under the new conditions, and a total of thirty-seven elected to remain. These settlers prior to the control passing to the Rural Assistance Board were each supplied with a cow, horse, and the implements requisite for their farming operations. They were provided also with seeds to permit of the growing of an area of tobacco, fodder, and side crops, and they are to have the advantage of periodical visits of officers of the instructional staff of this Department.

ST. LUCIA FARM SCHOOL.

Mr. Bosworth, at his own request, was relieved of the charge of St. Lucia, and resumed his position at the Agricultural High School and College at Gatton. He was replaced by Mr. J. A. Kerr, an officer of this Department.

From reports submitted by the Supervisor up to the 30th June, the following trainees have passed through or are at present undergoing training:—

Placed on farms by the Department or through private sources ..	94
Scholarships to Gatton Agricultural High School and College	4
Found employment other than farming	14
Unsatisfactory or left of their own accord	16
	128
At present undergoing training	51

A. E. GIBSON, Director of Agriculture.

STAFF REPORTS.

SOUTHERN DIVISION.

Mr. C. J. McKeon, Instructor in Agriculture, reports:—

During the period under review the agricultural districts generally were favoured with a rainfall above the average. Whilst in some instances this was either in excess of the requirements of certain crops, or occurred at inopportune times, such as during harvesting, crop production of the whole was very satisfactory. Any reduction in crop yields caused by excessive rains was more than equalised by the benefits derived by the grazing and dairying industries.

In most dairying districts there was an abundance of pastures and summer crops which could be conserved for winter use. Owing to the plentiful supply of soil moisture, dairymen were able to make early sowings of winter fodders for grazing purposes.

The areas sown with both wheat and maize were in excess of those of the previous year, and although the yields were not as heavy as was at one period anticipated, due largely to unfavourable weather conditions during harvesting, they were nevertheless very satisfactory in most districts.

Seed Maize Improvement.

This work was continued on similar lines to previous years, and was carried out in the Boonah, Kilcoy, Imbil, Yangan, and Allora districts. The propagation plots sown totalled approximately 103 acres, and comprised sixteen plots varying in size from 3 to 15 acres of the following varieties:—Funk's 90-Day, Star Leaming, Reid's Yellow Dent, Golden Beauty, and Improved Yellow Dent.

Considering the weather conditions, the results on the whole can be considered very satisfactory, and although no outstanding yields resulted the majority of the plots produced good crops. The season could not be regarded as being favourable for the production of heavy yields, more especially from crops sown early in the season.

In the coastal districts particularly, prolonged periods of rainy weather were experienced, and consequently there was insufficient bright, sunny weather to promote vigorous plant growth. Conditions during the ripening period were also unfavourable and tended towards reducing yields in crops where lodging of plants had occurred, and also where the coverings of ears were damaged by birds. Conditions were slightly more favourable for the late sown crops, particularly during the later stages of growth, and consequently better yields were obtained from these.

Apart from that selected specially for next season's plot work, sufficient seed of good quality was selected, which, after grading, will be sufficient to sow over 3,000 acres.

Funk's 90-Day.—Four plots of this variety were sown in the Boonah, Imbil, and Yangan districts, and with one exception results were very satisfactory. One plot of 12 acres was, unfortunately, rendered useless for seed purposes owing to a crop of another variety being sown at much the same time on an adjoining property.

This variety has shown a very considerable all-round improvement since its introduction, the type of ears and colour of the grain showing a much greater uniformity. When first introduced this variety was decidedly weak in the husk covering, but this can now be classed as very satisfactory. It has now been tried out in every maize-growing district in southern Queensland, and has given consistently good results wherever tried. The heavy demand for seed is proof of its popularity, and it is now the most popular of all the quick-maturing varieties.

Star Leaming.—Three plots, totalling approximately 20 acres, were sown at Kilcoy, Imbil, and Allora, and in each instance fairly good yields resulted. The plot sown at Allora yielded very well considering the weather conditions, the grain being particularly plump and true to type. Seed for distribution was selected from each plot, the quality being well up to the usual standard. This is also an extremely popular variety, and although not capable of producing such heavy crops as Reid's Yellow Dent is capable of producing under very favourable conditions, it has proved over a lengthy period to be the most consistent cropper, and also a variety which can be grown successfully over a wider area and under more varied conditions than most other varieties.

Reid's Yellow Dent.—One plot of 18 acres was sown in the Mary Valley district, and a very good yield resulted. Considering the extremely wet conditions under which the crop was grown, and which continued unfavourable during the time the crop was ripening, the quality of the grain was particularly good. This is all the more pleasing when it is remembered that this variety in the past was not generally regarded as being capable of producing prime grain under excessively wet conditions.

This variety, however, now has a very much better husk covering, and as a very large percentage of the ears are of pendulous habit, the ripening grain is well protected against rain. It has proved over a long period to be definitely superior as regards yielding ability to any other medium early variety yet tried, but has never become as popular as Star Leaming. The grain is of a more starchy nature, and consequently is more readily attacked by weevil than Star Leaming, but otherwise it has proved to be a remarkable variety. It has also proved to be a very suitable variety for the drier districts, and although it has not so far been tried out to the same extent as Star Leaming in these districts, it has performed well wherever tried.

Golden Beauty.—The results from the plots sown with this variety were disappointing. Two plots were sown, and in each instance the crops received a severe check during the early stages of growth as a result of heavy rains, and only light yields were obtained.

Improved Yellow Dent.—Owing to the fact that all plots of this variety were sown later in the season, weather conditions during the later stages of growth were much more favourable, and consequently better yields were obtained. The grain produced was of excellent quality, and large supplies of seed were selected for distribution. The following are the results of the ear-to-row test plots:—

Funk's 90-Day.

Row No.	Yield per acre in bushels.
413 x 171	91.5
413 x 172	66.9
413 x 173	79.4
413 x 174	69.9
413 x 175	69.1
Check	68.4
413 x 176	79.4
413 x 177	61.8
413 x 178	79.4
413 x 179	61.5
413 x 180	95.5
413 x 181	76.0
413 x 182	92.9
413 x 193	71.0
413 x 184	81.6
413 x 185	72.1
Check	73.5
413 x 186	68.8
413 x 187	74.3
413 x 188	89.6
413 x 189	80.9
413 x 190	84.9

Reid's Yellow Dent.

Row No.	Yield per acre in bushels.
402 x 213	73.2
402 x 214	74.6
402 x 215	83.4
402 x 216	95.1
402 x 217	54.1
402 x 218	68.8
402 x 219	77.6
402 x 220	79.0
402 x 221	73.2
402 x 222	65.9
Check	70.2
402 x 223	67.3
402 x 224	79.0
402 x 225	83.4
402 x 226	79.0
402 x 227	84.9
402 x 228	67.3
402 x 229	82.0
402 x 230	87.5
402 x 231	79.0
402 x 232	77.6

Improved Yellow Dent.

Row No.	Yield per acre in bushels.
401 x 379	78.7
401 x 380	71.3
401 x 381	72.4
401 x 382	83.4
401 x 383	80.5
401 x 384	88.2
Check	78.3
401 x 385	80.5
401 x 386	98.8
401 x 387	62.9
401 x 388	88.6
401 x 389	69.1
401 x 390	63.3
401 x 391	73.1
401 x 392	51.2
401 x 393	59.3
401 x 394	46.1
Check	76.8
401 x 395	46.1
401 x 396	76.8
401 x 397	82.7
401 x 398	72.4

GRAIN SORGHUMS.

A trial was conducted on Mr. M. Reeve's farm, Imbil, with a number of the varieties of grain sorghums which were introduced from the United States of America, Egypt, and South Africa. These were sown in one-chain drills, and a number of heads of each variety were hooded to prevent cross fertilization. Weather conditions during growth were most unfavourable, particularly during the time the grain was maturing, and as a result of the heads remaining in a saturated condition during the ripening period much of the grain germinated before it was mature enough to harvest with safety.

Sufficient seed, however, was saved from the hooded heads of each variety for further trials.

Considering the weather conditions the results were satisfactory, the behaviour of a number of the varieties proving them well worthy of further trial. Some of the dwarf varieties are most promising and give every indication of being good yielders. The following varieties were included in the trial:—

American Red Strain 21.—A fairly strong-growing variety of medium height. Does not stool well. Medium early. Seed head resembles Red Kaffir in shape, also in colour and size of grain. Good yielder.

Bergville Selection 3.—A tall-growing, light-stooling variety. Medium late. On account of its tall growth does not impress as being likely to prove of much value. Produces a very nice grain, reddish coloured, and of good size.

Bergville Selection.—A stronger and shorter-growing variety than Selection 3. Fairly good cropper, but otherwise not of any outstanding value. Medium late. Grain white, of fair size.

Dawn C.I. 340.—A strong-growing variety of medium height. Produces a fairly open type of head and should yield well. Medium late. Not as promising as some of the others, but worthy of further trial. Grain white and of medium size.

Gabani.—Very late-maturing variety, which made rather light growth. Produces an elongated head with red grain. One of the least promising varieties.

Hayes Dawn.—This variety made very attractive growth and stooled well. Plants were of medium height and made strong growth, and appear to be very hardy. Grain is white, of average size; worthy of further trial.

Hagari.—A very promising dwarf variety which stools well. Produces medium-sized heads with nice whitish coloured grain. Heads are not large, but owing to its free stooling habit should yield well. A very early maturing variety and one which shows great promise.

Klerksdorp Strain 3.—Strong grower, but does not stool. Medium height. Produces a good open type of head with good-sized brownish coloured grain. Shows promise of being a good yielder. It is a medium late variety. As it produces a very good type of head, it is considered worthy of further trial.

Klerksdorp Strain 4.—A much earlier and shorter grower than Strain 3. Also a stronger grower. Heads are fairly large with medium-size, reddish coloured grain. Should be a good yielder, but the heads are rather too closely packed to suit coastal districts.

Natal Selection 4.—A very poor germination resulted, and only one plant survived. This made strong growth of medium height and stooled freely. Heads are fairly large and of good type. Grain red and of medium size. Worthy of further trial.

Natal 1, Selection 6.—A taller-growing variety than Selection 4. Produces a large, open type of head. Grain white and of good size. Should be a heavy yielder, and apart from its rather tall growth is a very nice variety.

Old White.—A fairly late maturing, rather tall-growing variety. Does not stool. Produces a very attractive-looking grain. The heads, however, are very closely packed, and this detracts from its value.

Potchefstrom Dawn.—A fairly short-growing, medium early variety. Showed considerable variation in type of plant and seed head. Appears to be a new variety.

All of the foregoing were received from the Department of Agriculture, South Africa, together with eight other varieties which were forwarded to the Senior Instructor in Agriculture, Toowoomba. The varieties were Dwarf Pink, American Early Red, Pietersburg White, Sharon C.1. 813, Redfort Hayes, Reed C.1. 628, Birdproof, and Blackhull C.1. 71.

The following varieties, which were received from the Department of Agriculture, Egypt, were also included in the trial at Imbil:—

Giza 4.—A medium early, fairly short-growing variety, the grain of which is very similar to Feterita. It stools fairly well and shows promise of being a good yielder. Worthy of further trial.

Giza 10.—Very similar in many ways to Giza 4, but is slightly later in maturing. Grain was not as attractive, being more variable in size and generally smaller.

Giza 16.—A vary late maturing variety. Plants made good growth, of medium height, but owing to its late habit of maturity did not develop seed fully. Does not show much promise.

Giza 20.—This proved to be identical in every way with Hegari.

Giza 25.—A very tall growing variety, plants averaging approximately 11 feet in height. It is a very early maturing variety. Heads are large but very closely packed, and inclined to be goosenecked. Grain is large and very attractive, but otherwise the variety has little to recommend it.

Brown Yolo.—An early maturing dwarf dwarf variety which stools well and produces a nice type of seed head. The grain is of medium size. This is one of the most promising varieties.

The following varieties were received from the Bureau of Plant Industry, Washington:—

Club Kaffir.—A medium early variety of medium height. It stools freely and produces a nice open type of head and should be a good yielder. The grain is of fair size and is white with a tinge of pink.

Day Milo.—A most promising dwarf variety which should prove to be a good yielder. Heads are of fair size with a fairly large pink grain. This is one of the shortest stalked varieties and one which shows great promise.

Kalo.—This is another dwarf variety. Stools freely and makes vigorous growth. Heads are of medium size with a reddish coloured grain. Well worthy of more extensive trial.

Atlas.—A tall growing, heavy stooling variety. Medium late. May possess some value for fodder purposes, but does not impress as a grain variety.

Wheatland Milo.—This proved to be the most outstanding of the dwarf varieties. The heads are of very good size and carry a nice type of grain. The leaves showed a peculiar curled appearance throughout growth and this is evidently characteristic of the variety. This should prove a good yielding, hardy variety.

Western Blackhull.—A medium early variety of medium height. Produces a fairly good type of head with medium-sized white grain. Does not appear to be of any outstanding value.

SOY BEANS.

A varietal trial was carried out with several different varieties, but the results were not by any means conclusive. Excellent growth was made by most varieties up to the flowering stage, but from then on dull showery weather continued for several weeks at a stretch, with the result that a large percentage of the pods became affected with mould and very little of the seed was fully developed. The following varieties were included in the trial:—

Biloxi.—This made very strong branching growth and reached a height of 2 feet 6 inches. A heavy crop of young pods was produced, but being a late maturing variety these were in a more immature stage than those of other varieties when the wet weather set in and all were destroyed before reaching maturity.

Columbia.—This also made good growth and although as tall growing as Biloxi did not produce the same amount of foliage. It is slightly earlier in maturity but did not impress as being as likely to yield as heavily either for fodder or seed.

Easy Cook.—This is a very branching type with a heavy leaf growth. It appears to be more suited for grain production than for fodder purposes. It matured at much the same time as Columbia.

Hartimoay.—Germinated poorly and only odd plants came away. These were very similar in every way to Easy Cook. This variety also failed to develop any sound seed.

Japan.—This proved to a quick maturing variety but otherwise showed no promise. Plants were small and carried very little foliage and only a very light crops of pods was produced. It was the least impressive variety.

Old Dominion.—An upright growing type carrying a fairly heavy amount of foliage. Being a fairly late maturing variety no seed was developed. It is a variety which is considered worthy of further trial as a fodder variety.

Otootan.—From a fodder or green manure point of view, this was the outstanding variety. It made fairly tall upright growth and produced a finer stalk than any other variety. On account of its fine stalk and heavy leaf growth it should prove an excellent fodder variety. Being of very upright growth it would also be an easier crop to harvest than any of the other varieties.

AK 2.—Seed of this variety was introduced by the Ford Motor Company and was forwarded to this Department for trial purposes. It proved to be a very quick maturing variety and one which is well worthy of more extensive trial. The plants reached an average height of about 2 feet and made vigorous growth. A very heavy crop of pods was produced and on account of its earliness the earliest of these developed before the mould appeared. A considerable variation in type of plant was noticeable and a certain amount of careful selection would be necessary in any future trials.

BUCKWHEAT.

Small trials were carried out with the four varieties recently introduced from overseas. They all made good growth and produced good crops of seed. Owing to the wet conditions much of the seed germinated before the bulk of the crop was fit to harvest. Sufficient good seed, however, was saved from each plot to carry out much more extensive trials during the forthcoming season. The plots were sown on the 20th December and were harvested on the 28th February. The trial included the following:—

Canadian.—This reached a height of 2 feet and produced a good crop of seeds. It ripened very unevenly, some seed being almost mature before the plants had finished flowering. The grain was fairly large but showed slight lack of uniformity, a portion being of the silver hull type and the balance a much darker colour.

French.—This variety is very similar to the Canadian variety in period of maturity and habit of growth. The grain, however, was somewhat smaller and more regular in type and colour. It appears to be identical with the silver hull variety grown many years back.

Manchurian.—Produced a heavier crop than any other and was also earlier in maturing. It also ripened more evenly and produced a larger grain. The plants were very similar in appearance to the French and Canadian varieties, the only noticeable difference being a slightly more pointed leaf.

Polish.—This made lighter growth than the others and also produced a lighter crop. It was slightly later in maturing than Manchurian, but was ahead of the other two varieties. The grain was of medium size and well filled.

LESPEDEZA TRIALS.

Three strains—Nos. S. 04730, 17291, and 12087—were sown and all made very good growth. Strains 17291 and 12087 proved to be identical in every way and at no stage could any difference be distinguished. Both also proved to be of annual habit. They made very dense, procumbent growth, and although only annual in character show promise of being a very useful summer legume. They are prolific seeders and shed the seed freely once the plants have reached maturity. Their value as a soil renovator might also be worthy of further investigation as the roots were found to be densely covered with nitrogen nodules.

Strain 04730 made very erect, strong growth, and when approximately 1 foot high flowered and produced a crop of seed. This is undoubtedly a perennial strain and possesses a remarkably strong root system and stools out well after being cut. It impresses as being a very hardy plant, but also gives the impression that it would become coarse and woody if not kept constantly grazed or cut. In view of the fact that Lespedeza seed has the reputation of giving a poor germination unless treated in some way prior to sowing, portion of the seed was treated just prior to sowing. In one treatment the seed was rubbed with sandpaper to remove any hulls and at the same time to scarify the seed. In the second treatment the seed was submerged in commercial sulphuric acid for twenty minutes and then rinsed thoroughly in cold water. In neither case was the necessity for any form of treatment apparent as the untreated seed germinated quite as well, and in fact slightly better, than any of the treated seed.

GRASSES.

The four strains of digitarias mentioned in the previous report made sufficiently good growth to permit of sending a parcel of rootlets of each to officers in various districts for trial purposes, the balance being transferred to St. Lucia Training Farm, where they have made excellent growth. Sufficient rootlets should be available during the coming season to test these out more extensively.

Several small parcels of rootlets of *Digitaria eriantha* were also forwarded to farmers in various districts with a request that this Department be advised regarding their behaviour.

Unfortunately in not one instance has this request been complied with to date.

Spartini Townsendii.—This grass continues to make very good growth on the river edge near the old wharves. It is now spreading well in places and where not submerged for lengthy periods appears to be very definitely established. Although it has been reported that the grass has flowered and produced seed in the Gladstone district, that sown along the banks of the Brisbane River has not flowered to date.

Apart from the time devoted to maize improvement and other experimental work a considerable amount of time was devoted to instructional work in the office and in the various districts.

CENTRAL DIVISION.

Mr. G. B. Brooks, Senior Instructor in Agriculture, reports:—

Seasonal Conditions.

Rainfall in the agricultural districts, both in regard to quantity and distribution, has been perhaps the most satisfactory for many years. The falls experienced during the winter and early spring months were sufficient to keep the pastures reasonably fresh, and also ensured the production of succulent winter-growing fodder crops. That the dairy herds came through the winter in good condition was reflected in the increased output from the butter factories during early summer, and later by establishing monthly production records. It was found necessary to considerably enlarge the Wowan factory in order to cope with increased supplies. Additional storage accommodation is being provided at Gladstone, the estimated cost of which is £7,000.

The favourable season, together with increased acreage, necessitated the reopening of the Gladstone Cotton Ginnery, the plants at Rockhampton and Brisbane being unable to handle the crop.

The rainfall in the Mackay area, although only 2 inches over the average, was unusual in its distribution. The July-December period is invariably dry, the average precipitation being about 15 inches; for the period under review it amounted to 34 inches. Falling during the cane-cutting season, difficulty was experienced in getting the cane off the water-logged fields. It also considerably delayed the burning of old tobacco stalks after harvesting.

Experimental and General Instructional Work.

Staff work was continued on lines similar to those of previous years, particular attention being given to tobacco growing.

My services during the year were made available to the Land Administration Board, as a member of a special committee of three appointed to investigate certain matters connected with the Theodore Irrigation Area, several sittings being held during the year.

Tobacco.

There has, unfortunately, been a serious decline in production in each of the tobacco-growing districts. This was mainly due to the incidence of blue mould and adverse climatic conditions.

In the Mackay district the continued wet weather experienced during the early summer months favoured the development of blue mould in the seed-beds, and later in the field, where it caused considerable damage.

The heavy rainfall also accounted for the marked decrease in acreage at Miriam Vale. This was, however, more the result of heavy floods which submerged a large proportion of the creek flats on which most of the seed-beds were located. This occurrence, unfortunately, coincided with an outbreak of blue mould, the combined effect of which was responsible for many farmers abandoning the growing of tobacco for the season.

To compensate in a small measure for the decrease in area, the resultant leaf harvested was of much better quality, and a higher average price ruled at the sales than that obtained for the 1932-33 crop.

Frog-eye and barn spot are only present in a minor degree.

Breeding and Selection Work.—Seed propagation plots, ¼ acre in extent, were arranged for at Scrubby Creek and Alpha.

Warne variety was grown at the former, and Gold Leaf at the latter place.

An excellent crop of Warne seed was harvested, but conditions in the West were unfavourable for obtaining satisfactory results from the Gold Leaf.

A large number of ''selfed'' selections have been secured of Warne.

Varieties Grown for Observation and Classification Purposes.—Twenty-six varieties were grown, mostly from imported seed, and planted in a ¼-acre plot at Harveston, Rockhampton. Seed of special ''selfed'' selections were secured for further propagation work, while a large number of crosses between the respective varieties were made, the object being to breed varieties more resistant to disease and adverse climatic conditions than those at present under cultivation.

A detailed classification is being compiled of all the varieties at present grown in the State, which will be of considerable assistance in future breeding and selection work.

Fertilizer Trials.—From observations made during the previous season, it would appear that additional quantities of nitrogen above the quantities supplied by 500 lb. of the Standard A.C.F. and Shirley's No. 4 Tobacco Mixture are unnecessary. The trials arranged were therefore mainly designed to test varying quantities of phosphates and potash.

Last season's trials with lime at Byfield suggested distinct possibilities, consequently tests were again included in the seasonal programme.

In the trials the No. 4 Mixture referred to was used as a standard, and superphosphate was applied at the varying rates of 300 lb. and 500 lb. per acre, applied singly, with potash, and as complete mixture. Nitrogen was supplied in 50 lb. of sulphate of ammonia and 70 lb. of blood, the total nitrogen thus supplied being slightly less than that supplied in the 500 lb. of No. 4 Mixture.

Plots were arranged as follows:—

Bundaberg	F. J. Wheeler
Miriam Vale	S. Larsen
Byfield	E. A. Meilland
Koumala	R. A. Atherton
Sarina	Brooks & Gerry
Dunwold	J. Taylor

The Bundaberg plot was subsequently cancelled. Blue mould infestation proved so disastrous to the Byfield, Sarina, and Dunwold plots that the crops were useless for the compilation of comparative data.

RATE OF APPLICATION RESULTS.

——	No. 4.	300 P	300 P 80 K N	300 P 160 K N	500 P	500 P 160 K	500 P 80 K N	500 P 160 K N	No. 4. 500 L	No. 4. 1,000 L
Miriam Vale	698	648	929	794	634	440	947	782	794	810
Koumala	..	..	..	..	..	..	..	..	..	..

Method of Application Trials.—These trials were arranged and planted in conjunction with the fertilizer tests, and six methods were employed.

The fertilizer used was one approximating the 4½-15-4½ mixture. It was applied in a narrow strip similar to drilling, broadcasted, casted on an 18-inch strip, and casted on the surface of the hill, and two plots were top-dressed only after drilling, and one after casting on 18-inch strip. The results were:—

——	Miriam Vale.	Koumala.
Drill	680	..
Broadcast	773	..
18-inch strip	722	..
On hill	568	..
Drill and top dressed	690	..
18-inch strip and top dressed ..	730	..

At Miriam Vale a rate of application trial was also made with a tobacco mixture prepared by Fertilizer Distributors Limited, No. 4 being used as a standard.

The rates of application were 400 lb., 600 lb., and 800 lb. per acre. No. 4 was applied at the rate of 600 lb. per acre.

The results were:—

400 lb.	612 lb. of leaf per acre
600 lb.	634 lb. of leaf per acre
800 lb.	699 lb. leaf per acre
600 lb., No. 4	799 lb. leaf per acre

Green Manuring Trials.—Miriam Vale: Planted with E. Dahl on 7th February, 1934. Cowpeas failed to germinate owing to weevil infestation. Both the Sudan grass and White Panicum made very slow and poor growth. An estimation of yield made on 22nd April, 1934, showed that neither was exceeded a return of 2 tons of green material per acre.

Variety Trials.—These were carried out on land adjacent to the fertilizer tests. The varieties used were Warne, Cash, Hickory Pryor, and Yellow Pryor, the fertilizer used being 500 lb. of No. 4 per acre.

VARIETY TRIAL RESULTS.

Variety.	Miriam Vale.	Koumala.
Warne	773	..
Cash	659	..
Hickory Pryor	406	..
Yellow Pryor	273	..

From tests carried out, and from observations made of the behaviour of these four varieties, at present the principal ones grown in the Central district, it would appear that the most satisfactory results were secured from Cash and Warne. Yellow Pryor is not so extensively raised as the other three, consequently fewer opportunities were available for comparison.

Hickory Pryor, grown under very favourable conditions, is certainly a most attractive variety, but if subjected to adverse climatic conditions, such as a dry spell when reaching the flowering stage, serious losses occur through the bottom leaves perishing, and the middle lower leaves withering at the tip.

Warne has a tendency to sport, therefore care should be taken when selecting plants for seed to top any that are not typical of the variety.

Leaf Samples.—Samples of cured leaf of the respective grades were selected from the different tobacco-growing districts for the purpose of carrying out smoking tests by the Australian Tobacco Investigation. Selected hands of each of the varieties grown in Central Queensland were also secured for exhibition purposes.

WHEAT.

This cereal is only grown to a very limited extent in the Central division, individual areas extending from 200 to 300 acres being harvested in the Dululu, Theodore, and Nipan districts.

Dry conditions during early winter delayed planting until July, some sowings being made in August. Useful rains fell during the latter stages of growth, in consequence of which record yields were anticipated. Just prior to harvesting, however, storms, accompanied by strong winds and heavy rain, flattened many of the fields to such an extent that harvesting was exceedingly difficult. As showing the promising nature of some of the damaged crops, a yield of over 30 bushels per acre was secured, several bushels per acre being left in the field. Wet, humid conditions prevailed at Theodore for a period sufficiently long to cause much of the grain to sprout in the ear.

Of the several wheats grown in the respective districts it was found that Florence withstood the adverse conditions much better than other varieties.

Experimental Wheat Trials.—Four 1-chain row wheat variety trials were planted in the Central division for the season 1933. Two of the plots embraced varieties selected from previous tests carried out in this division. These were planted with W. Llewellyn, Dululu, and Letchford Bros., Theodore. The other two plots included thirty-three varieties forwarded from Roma State Farm, and which had not previously been tried here, were arranged for on the farms of Messrs. R. Orme, Nipan, and McCosker and Sons, Emerald.

R. Orme also planted ten ½-acre plots of the more promising varieties for comparison and for seed supply; these varieties were also planted in one-eightieth acre plots by McCosker and Sons, Emerald.

Two seed increase areas of Seafoam were planted with Letchford Bros., and at the Cotton Research Farm, Biloela.

A Pusa Novo crossbred, 2901, was also planted in seed increase areas with W. Llewellyn, Dululu, and at the Cotton Research Farm, Biloela.

The results indicate that the best varieties of the two plots of twenty-two varieties planted at Dululu and Theodore are, in their approximate order of merit—

C.C.C	2910
C.C.C.	2912
Clarendon	
Pusa	
B.I.P.M.	2617
Bo.F.G.	2606
C.C.C.	2701
C.C.C.	2705
C.C.C.	2911
Pinto	
C.C.C.	2905
Flora	
Florence	
Pusa × Nova	2901

The best varieties in the two trials comprising thirty-three varieties from Roma and planted at Nipan and Emerald are—

C.C.C.	2704
C.C.C.	3016
B.I.P.M.	12
Bo.F.G.	2627
Clar. Garnet	3014
S.E.C.C.C.	3212
Bo.F.G.	3617
Bo.F.G.	3201
C.C.C.	2709
C.C.C.	2908
C.C.C.	2911
C.C.C.	3207
Minflor	
Pinto × Clar.	3004
P.C.C.C.	3209
P.C.C.C. × S.E. × C.C.C.	3202

With a few exceptions these varieties, together with forty-three new crossbreds from the Roma State Farm, are embraced in this season's single row trials.

The two increase area plots planted at Emerald and Nipan gave the following results::—

Three Seas gave the best yield, closely followed by B.I.P.M. 12, Bo.F.G. 2627, C.C.C. 2613, C.C.C. 2614, C.C.C. 2704, and C.C.C. 2708, and B.I.P.M. 2804 in their approximate order of merit.

C.C.C. 2614, however, shatters badly. Consequently it was discarded from further trial, but the remainder, together with Sea Foam, which is identical with C.C.C. 2613, and which yielded well in the seed increase area, Pusa, and Florence, have been planted in increased areas this season for further trial.

Messrs. R. Orme, Nipan, Letchford Bros., Theodore, and F. R. Lehmaine, Biloela, are co-operating with the Department in carrying out a similar series of trials this season.

BARLEY.

Comparative trials with the following barley varieties were inaugurated:—Spratt Archer, Vaughan, Atlas, Trebi, and Horne, and were planted in single drills, while the varieties Winter Archer, Plumage Archer, Skinless, and Cape were planted in 1-acre blocks.

These plots were arranged in conjunction with the wheat trials, and were planted with Messrs. Orme, Letchford Bros., and Lehmaine.

PASTURE IMPROVEMENT.

Much of the correspondence received by this branch from farmers is in relation to grasses and pastures.

Although the activities of the staff have been to a large extent concentrated on tobacco work, it was possible to give some attention to the carrying out of trials with a number of plants as to their suitability for pastures.

Scrubby Creek Pasture Plot.—Several new introductions were added to the recently established trial plot at Scrubby Creek, probably the most interesting being a promising pasture plant (*Stylosanthes guyanensis*) from Brazil. This is a close relation to our so-called Wild Lucerne (*Stylosanthes mucronata*).

Last season arrangements were finalised for the carrying out of comparative trials with a number of selected grasses, together with *Stylosanthes mucronata,* in order to determine their suitability for the coastal country lying between Mackay and Proserpine.

The site selected for the plot was on the farm of Mr. A. R. McLeod, Yalboroo, the varieties under observation being tested out in both forest and scrub. Unfortunately, no conclusive data have been secured as to their behaviour under a proper system of grazing, as the area was not fenced in prior to the varieties reaching their maximum growth.

Brief details regarding the progress made by the respective varieties are as follows: —

Scrubby Creek Pasture Plot: Buffel (*Pennisetum cenchroides*).—Planted 8th August, 1933. Made quick growth, about 18 inches to 2 feet high, soft and luxuriant. A selection made from Buffel cenchroides is being tried out. This has a most pronounced drought-resisting rooting system. It also lasts longer in a succulent stage. Very free seeder.

Stylosanthes mucronata.—Planted 8th August, 1933. Owing to the heavy nature of the soil only fair germination resulted, growth in the early stages was slow, but more rapid development took place towards the end of summer. Seeded late in season. This variety has attained a wide distribution, and is likely to revolutionise stock raising on the coast.

Urochloa pululans.—Planted 14th August, 1933. Made excellent growth, about 3 feet high, from roots obtained at Archer. High flag ratio in apparently good grazing. At seeding stage the stems become somewhat hard, but the grass should be a useful adjunct to the usual grazing grasses. Very free seeder.

Woolly Finger (*Digitaria eriantha*).—Planted 8th August, 1933. Does not make the luxuriant growth of other varieties of the species. When tested out it stands up well to grazing, and is very resistant to drought.

Digitaria pentzii.—Planted 8th August, 1933, and 4th September, 1933. Makes very quick growth, very leafy, very similar in character to what is known as summer grass in cultivations.

Digitaria valida.—Planted 4th September, 1933. Somewhat similar to Pentzii, but not quite so quick growing. Very good leafy type.

Gigitaria polevansii (Kuriman).—Planted 4th September, 1933. More upright, broader leaf, and later growing, but not spreading as fast as the other Woolly Finger varieties.

Digitaria polevansii (Inkrup).—Planted 4th September, 1933. Similar to the Kuriman strain in many ways, but perhaps not such a rapid grower.

The Woolly Finger grasses, with the exception of *eriantha,* have not yet been tested by being grazed down with stock.

Giant Blue (*Brachiaria mutica*).—Planted 14th September, 1933. Made very quick and flaggy growth, reaching a height of about 4 feet, and now in full seed. This is a variety very suitable to the areas along the Central district coast.

Molasses (*Milinis minutiflora*).—Made quick growth, about 2 feet 6 inches to 3 feet high, in full seed. Sowings made in several localities along the coast have given satisfactory results. No adverse reports have been received as to its imparting a taint to cream or milk.

Blue Panic (*Panicum antidotle*).—Made fairly leafy and succulent growth during early stages, but later developed a hard stemmy growth.

Kikuyu (*Pennisetum clandistinu*).—Owing to unfavourable weather, the first planting failed. A replant made has given more satisfactory results.

New Zealand Wild White Clover.—Only recently planted, has germinated well.

Phaseolus triloleus.—Planted 11th August, 1933. Good germination, grew to a shrubby bush, about 2 feet high, covering about 4 feet of ground. Prolific seed-bearer, but does not appear to be a plant that would lend itself as being suitable for improving pastures.

Lespedeza sericea.—Planted 14th August, 1933. Poor germination, made fair growth, very branching, hard, and stalky growth, with small leaves. Lacking in succulence and generally disappointing. Seeded profusely.

Stylosanthes guyanensis.—Planted 21st September, 1933. A Brazilian importation. Good strike, made very robust growth, larger leaf, and more succulent stem than *mucronata,* single row covering about 8 feet of ground. Came into flower early May. Being high in protein content gives promise of becoming a valuable pasture plant and cattle fodder.

Alycarpus regusus.—Planted 21st September, 1933. Seed procured from Royal Botanic Gardens, Kew, England. A tall (6 feet) growing legume. The leaves being high in protein would be useful as a stock food, but the stem and branches are too woody for such purpose. Died down after seeding.

Vigno oligosperma.—Planted 17th November, 1933. A fine-stemmed, creeping legume, of which stock are very fond. Grew well amongst Paspalum, the long runners rooting at the joints. Promises to be of value in districts of heavy rainfall in increasing the protein content of pastures. Very shy seeder.

Sensitive Plant (*Mimosa pudica*).—Gave a poor germination in the first sowing. A further lot of seed was treated with sulphuric acid for three minutes, resulting in a good strike. The young tips of this plant have a very high protein content, and are relished by stock, more particularly during the early winter months, when the plant is invariably grazed down.

Indigofera endcaphylla.—Planted 17th November, 1933. A small growing plant, which so far has not given sufficient growth to suggest its being a useful fodder plant.

Korean Clover (*Lespedeza stipulacia*).—This seed was obtained from the United States as *Lespedeza sericea.* Owing to the poor germination secured from the *Lespedeza sericea,* the following experiments were made in treating the seed prior to sowing with sulphuric acid for three minutes, and for thirty minutes, with hot water for thirty minutes, and sandpapered. The three minutes sulphuric acid treated and sandpapered seed gave the best germinations. Hot water and thirty minutes sulphuric acid treated seed being only fair. None of the treatments, however, showed to much advantage, if any, over the untreated self-sown seed, which appears to germinate readily. This annual clover grew rapidly to a height ranging from 9 to 12 inches. It is leafy and succulent, and would be a valuable acquisition to pastures if it could be established.

Yalboroo.

Forest Area: Giant Couch (*Brachiaria mutica*).—This grass has completely covered the land to a depth of over 3 feet. It does not readily seed, and in consequence of its succulence and high-feeding value it gives promise of being suitable to the district.

Kikuyu (*Pennisetum clandestinun*).—There was some difficulty in getting this variety established, the planting sets getting damaged in transit. The area is not quite filled up, but should be covered before winter. Although the growth made is not luxuriant, it is, nevertheless, in a condition to provide good grazing. There has, so far, been no indication of seeding.

Molasses Grass (*Milinis minutiflora*).—This has done remarkably well, taking complete possession, to the exclusion of all other sorts, including ''blady,'' a common variety indigenous to this district. Mr. McLeod fed it exclusively to his cows for several days, but no taint could be detected either in the milk or cream.

Paspalum dilatatum.—Only a fair stand was secured. It is, however, seeding heavily, and under the moist conditions obtaining in this district it is likely to gradually eliminate the indigenous sorts.

Giant Blue.—This is a native of Northern India, and found near Rockhampton as a stray in cultivation. Owing to a limited number of rootlets being available, only portion of the area has so far been planted up. Its habit of growth would indicate that it is likely to prove a suitable variety for the district.

Rhodes Grass.—This variety, unfortunately, failed to give a satisfactory germination. Fresh plantings are being made.

Stylosanthes mucronata, so-called Wild Lucerne.—When the type of soil and the condition under which it was grown is taken into consideration, the germination secured, although patchy, was satisfactory. The plants made excellent growth, seeded heavily, and as a result are more than holding their own with the vegetation that naturally makes its appearance upon the breaking up of the land. This is undoubtedly one of the most important acquisitions to our pastures for many years.

Scrub Area.—The results secured on the scrub portion are, strange to say, much less satisfactory than that secured on the forest area. This arose through an indifferent burn prior to sowing the grass and seed, and from a crop of suckers which later made their appearance, although brushed down, further difficulty is anticipated.

Rhodes and *Stylosanthes* were sown as a mixture. While the former failed to give a satisfactory stand, the latter was in sufficient proportion to give a balanced feed.

The Paspalum and other sorts are patchy, but, providing suckers can be kept in check,they will doubtlessly quickly cover the land.

Spartina Townsendii.—A small number of rootlets of this rather remarkable marine grass were planted in different localities along the Central coast, embracing Raglan, Gladstone, Casuarina Island, Fitzroy Vale, and Yeppoon. Growth has been slow, but from reports received from other parts of the world this is usual during the first two years after planting. The plot at Casuarina Island made the greatest development, coming into seed in February, 1934. It is therefore evident that subtropical conditions are favourable for its successful propagation.

ANALYSIS OF PLANTS FROM PASTURE EXPERIMENT PLOT, SCRUBBY CREEK.

Name of Grasses.	*Lespedeza sericea.*	*Alycarpus regusus.*	*Digitaria pentzii.*	*Urochloa pululans.*	*Phaseolus triloleus.*	Red Flinders Grass.	*Stylosanthes guyanensis.*
Moisture	9·6	10·1	9·0	9·4	10·2	9·5	..
Protein	16·3	25·4	10·4	9·4	16·1	4·2	13·0
Carbohydrates	45·1	41·8	42·0	42·3	45·2	51·7	40·4
Fibre	29·8	18·3	35·7	35·2	25·8	32·4	34·5
Fat	1·4	2·4	1·2	·6	1·2	1·1	1·6
Ash	7·4	12·1	10·7	12·5	11·7	10·6	10·5
Lime Cao	1·487	2·915	·443	·395	2·643	·321	·194
Phosphoric acid	·688	·662	·475	·516	·766	·452	·895

Only leaves and small twigs of the shrubby plant *Alycarpus regusus* taken for analysis.

PEANUTS.

Considerable expansion has taken place in the growing of this crop, more particularly in the Barmoya and Wowan districts. A large proportion of the excellent crop harvested is being graded and marketed by the recently formed Peanut Growers' Association, Rockhampton. The varieties grown are practically restricted to Virginia Bunch, Red Spanish, and Valencia. The approximate quantities received at the grading shed are—8,000 bags Virginia Bunch, 530 bags Red Spanish, and 188 bags Valencia.

POTATOES.

Increased attention is being given to potato-growing, more particularly in localities where irrigation facilities can be availed of. The principal districts engaged in raising this crop are—Scrubby Creek, Theodore, Boyne Valley, and Benaraby. The most popular varieties are those that have been grown for a number of years, viz.:—Brownells, Satisfaction, Up-to-date, and Carmen.

SWEET POTATOES.

The sweet variety is more generally grown than English, being less particular as to requirements of soil and climate. The seedlings raised some years ago are now the main varieties cultivated in most of the agricultural districts.

MAIZE.

This crop, which yielded well, is now only grown in very limited areas, cotton taking precedence. The grain produced is invariably used for home consumption, feeding pigs, fowls, &c.

BROOM MILLET.

Medium crops of good quality fibre were grown in the various agricultural districts, but the returns received were not generally considered satisfactory.

FODDER AND HAY CROPS.

The providing of a supply of fodder to tide the herds over a dry period is now becoming a recognised practice in the dairying districts. Perhaps the most universally grown green crop is Sorghum. Sown during the late summer as a stand-over crop, it provides a large amount of succulent feed throughout the winter. Sudan, a most useful crop, both in the green and dry stages, is to be found on practically every farm, and has, to a large extent, taken the place of Panicums and Millets. Lucerne is obtaining a wider distribution, and is now grown in situations which a few years ago farmers would have considered as being unsuitable for the raising of this most valuable fodder.

ONIONS.

Plots were established during the 1933 season with the following growers in the respective districts:—

R. E. Wilmott ..	.. Theodore
J. E. Freeman ..	.. Theodore
W. Brown and Sons	.. Archer
A. E. Fisher and Sons	.. Gracemere
P. Graff	.. Nerimbera

These growers planting the four following varieties:—

Early Hunter River Brown Spanish.
Extra Early Golden Globe.
White Imperial.
New King.

A general survey of the results would indicate that the varieties in general cultivation, other than Early Hunter River Brown Spanish, are unsuited to Central Queensland conditions. These results are confirmed by previous season's trials.

The varieties—White Imperial, Golden Globe, and New King—all failed to produce marketable bulbs, being "bull-necked" and of poor shape.

Although yields were computed, only very small quantities were marketed; the general quality of Brown Spanish was, however, satisfactory.

Commercial crops throughout the districts were of good quality, but, owing to the glutted state of Southern markets, only fair prices were realised. During the latter part of the season the returns were so unsatisfactory that it did not pay to harvest the crops, in consequence of which several areas were ploughed under.

Thrips made their appearance during the bulbing stages, but did little apparent harm. Spraying was not resorted to, the attack being regarded as only light.

RESULTS—YIELDS IN TONS PER ACRE.

Grower.	Varieties.				Planted.	Harvested.	Rainfall.	
	Brown Spanish	White Imperial.	Golden Globe.	New King.			During Growth.	Previous month.
A. E. Fisher and Sons, Gracemere ..	7·65	4·6	5·1	3·2	2–7–33	18–11–33	2,849	155
W. Brown and Sons, Archer ..	7·5	3·1	4·2	..	10–6–33	11–12–33	3,217	47
P. Graff, Nerimbera	8·65	..	2·6	..	28–7–33	6–12–33	1,110	2,107
R. E. Wilmott, Theodore	9·7	4·2	4·8	4·6	6–6–33	23–11–33	1,905	Irrig.
J. E. Freeman, Theodore	8·6	4·1	3·7	..	10–6–33	25–11–33	1,905	Irrig.

Fertilizer trials are being conducted during the present season in co-operation with Messrs. J. E. Freeman and W. Kimmins, Theodore, with the object of inducing early maturity, and to improve the keeping quality of the bulbs.

NORTHERN DIVISION.

Mr. C. S. CLYDESDALE, Senior Instructor in Agriculture, reports:—

SEASONAL CONDITIONS.

Rainfall records over the Northern Division show an increase over the previous year, and every year since 1927. The total for the year was 55·36 inches, against an average for the previous sixty-three years of 46·46 inches. December precipitations aggregated 1,310 points, the highest for that month since 1916.

Coastal districts and the Tableland experienced very heavy falls in December, January, February, and March, which resulted in high floods in many of the rivers, causing delay in transport and hampering seriously all farming activities. These persistent rains created waterlogged conditions and retarded rather than assisted plant growth.

Good rains also fell in the inland areas, and in the absence of low temperatures assisted in providing fairly succulent pasturages, and also good supplies of water.

Stock are in good condition, and present prospects are most promising.

Meatworks are now operating and the cattle offering generally are of average quality. It is expected they will continue killing until the middle of August. The estimated approximate killings supplied by the District Stock Inspector for this season are:—

Merinda Meatworks, Bowen ..	20,000
Alligator Creek Meatworks, Oolbun	28,000
Ross River Meatworks, Townsville	25,000

RAINFALL.

Month	Bowen.	Townsville	Moreeba.	Dimbulah.
1933.	Points.	Points.	Points.	Points.
July	519	128	30	48
August	218	204	199	170
September ..	195	83	77	27
October	202	158	161	156
November ..	375	662	692	631
December.. ..	373	1,310	840	728
1934.				
January	806	1,534	1,350	756
February	1,264	1,580	1,397	914
March	162	54	1,451	599
April	81	103	269	197
May	40	14	62	52
June	175	238	101	188

ACTIVITIES.

As in previous years, attention has been mainly devoted to experimental plots and demonstration areas. Co-operation with farmers in the various localities has continued in conjunction with general instructional duties.

Experiments embrace variety and fertilizer trials with tobacco, onion, and cotton trials, and pasture improvement work.

In addition to trial work, attention has been devoted to general instruction over a wide range of agricultural practice.

EXPERIMENTS.

Tobacco Fertilizer Trials, Bowen District, 1933.—These trials will not be completed until the middle of August and the results to date are:—

Fertilizer Mixture.	Quantity per acre.	Weight of leaf. No. of line.	Weight of leaf. Line A.
	Lb.	Lb.	Lb.
1 Control	..	(1) 56	(1A.) 50½
4–8–6	320	(2) 77½	(2A.) 64
4–12–6	320	(3) 80	(3A.) 61½
3–10–5	320	(4) 73	(4A.) 59
Superphosphate ..	120	(5) 51½	(5A.) 50¼
4–8–6	640	(6) 68½	(6A.) 60¼
4–12–6	640	(7) 74¾	(7A.) 73½
3–10–5	640	(8) 66¾	(8A.) 66½
Superphosphate ..	240	(9) 62½	(9A.) 67¼
Control	Nil	(10) 63	(10A.) 60

Although the total yield was, approximately, 1,200 lb. per acre, the leaf generally was of inferior quality carrying considerable amount of dead and perished leaf, due to the prolonged dry period during its early growth and the late application of water. Apparently, however, no increased yield has been produced by the application of the double quantities of fertilizers, and no benefit has been obtained from the application of lime.

Owing to the adverse conditions under which the crop was grown, there appears to be no material difference in the leaf obtained from the various mixtures; but there was a definite drop of yield on both applications of superphosphate, which is accounted for by these plots carrying or being bady affected with mosaic, while elsewhere the effect was very slight. Blue mould on the lower leaves necessitated pruning four to six leaves on an average from all plants in the field, but this would apply to all plants similarly.

Experiments, 1934 Season.—Similar experiments were carried out which embraced different fertilizer mixtures, together with different methods of application and variety trials. The area of each experimental plot was 1½ acres. Fertilizer trials comprised ten plots, each one-tenth of an acre; and variety trials, half an acre with ten varieties.

Fertilized Plot.	N. P. K.	Quantity of fertilizer per acre.
1	3 8 5	320 lb.
2	4 8 6	320 lb.
3	3 10 9	320 lb.
4	4 12 6	320 lb.
5	Control	No fertilizer
6	3 8 5	480 lb.
7	4 8 6	480 lb.
8	3 10 9	480 lb.
9	4 12 6	480 lb.
10	Control	No fertilizer

No. 4 Plot fertilizer was broadcast over a strip of land approximately 18 inches wide, while on No. 9 the fertilizer was broadcast over the whole area.

VARIETY TRIALS.

Variety Trials comprised the following:—Adcock, Blue Pryor, Bonanza, Crutcher, Hester, Little Orinoco, Lizard Tail, Jamaica, Wild Fire Resistant Orinoco, and Yellow Orinoco.

These trials were arranged, in co-operation with local farmers, in five sub-districts, viz.: Hervey's Range, Woodstock, Inkerman, Mount Aberdeen, near Bowen, and Mareeba.

Unfortunately at Hervey's Range, Woodstock, and Mareeba, blue mould was responsible for the destruction of all plants in the seed beds. Several attempts were made to raise seedlings, but in every instance were wiped out by this disease. Owing to the lateness of season, these trials had to be abandoned.

At Inkerman and Mount Aberdeen more favourable conditions prevailed, but before the plots were planted out blue mould made its appearance, which resulted in not obtaining a full stand of plants in each plot. The plants used were weak and an irregular strike resulted; in fact, so much so, that the experiment from a fertilizer point of view had to be considered useless.

Samples will be available from each plot for carrying out smoking tests.

The varietal trials suffered similarly in most respects, and proved conclusively that further and more extensive trials are warranted with the Jamaica, Yellow Orinoco, Hester, Crutcher, and Bonanza varieties. Jamaica was the most outstanding and gave a very high return in comparison with all other varieties; its colour and texture is most apparent.

Tobacco Seed Propagation Plots.—With a view to producing quantities of seed in disease free areas, arrangements were made for the planting out of three pure seed areas in the Pentland district. Maryland Mammoth, Gold Leaf, and Warne were the varieties used.

Unfortunately the seed of Maryland Mammoth failed to germinate, although two separate sowings were made. Both Gold Leaf and Warne germinated well, and a plot of approximately 1,200 plants was planted out. Although late when planted out in the field, the plants made excellent growth. Gold Leaf variety up to the present is most promising; it is true to type, and disease free. Warne showed a fair number of mosaic-infected plants, and these were rogued carefully out of the plot. Later inspection indicated that all remaining plants are now free from disease. There is every possibility of obtaining a good supply of disease free seed.

Green Manurial and Fertilizer Trials on Tobacco Lands.—Most of the lands that are being utilised for the growing of tobacco comprise sandy soils, and it appears from recent crop returns that the maximum results are not being obtained from the fertilizers applied, due, no doubt, to an insufficiency of humus.

Experiments are being conducted to ascertain the most suitable varieties to grow as green manure. Arrangements have been made to establish trials in the following sub-districts:—Hervey's Range, Woodstock, Charters Towers, Inkerman, and Mount Aberdeen; local farmers co-operated by providing the necessary land and assisting in the cultivation of the crops. The area of each plot is 1 acre. The varieties used are Mauritius beans, cowpeas, and Sudan grass. Mauritius beans and cowpeas were fertilized at rate of 5 cwt. per acre of A.C.F. No. 8 (2-17-6), and Sudan grass with Shirley's No 8 (4·1-16·4-0) at 3 cwt. per acre.

The rate of seedling per acre was:—Mauritius beans, 45 lb.; cowpeas, 60 lb.; Sudan grass, 60 lb.

At Woodstock, Hervey's Range, and Mount Abundance, the seed was sown early in April and, although good conditions prevailed, the germination of Mauritius beans was very poor, so much so, that no beneficial results can be expected. Cowpeas and Sudan made excellent growth and were ploughed under during the latter part of June.

The Charters Towers and Inkerman plots were not planted, due to the dry weather.

TOBACCO.

General Conditions.—From October onwards frequent and heavy storms occurred, with the result that the seed beds were almost constantly too wet. This condition existed in beds for so long a period that trouble was bound to result. Blue mould made an appearance in odd seed beds in December, but at this early stage apparently lacked virility to cause any serious damage. Towards the end of the calendar year and during the heavy rain experienced early in the new year, blue mould attack became most severe causing wholesale damage. Only where the bluestone fines and potash soft soap spray had been persevered with were there seedlings fit for planting out. This spraying mixture evolved by the Department, when applied to the seed beds thoroughly and at regular intervals, will undoubtedly check blue mould to a greater extent than any other spraying mixture, experiences of past season have amply proved this contention.

"Frog-eye" and "barn spotting" occurred to a degree in some crops, but not anywhere near to the same extent as in the previous season. "Spotting" occurred in crops or portion of crops where excess moisture was apparent, and at different periods in the plant growth. For instance, some crops showed bad "spotting" in the early cures, while later cures were absolutely free.

Taken as a whole, the percentage of spotted leaf produced this season is considerably less than in the previous season, and a very small percentage of leaf will be rejected on this account.

Insect Pests.—Tobacco leaf miner and the stem borer caused widespread damage, the attacks of both these pests being particularly severe and of long duration. Undoubtedly much infection occurred in the seed beds, which were left open for long periods in an endeavour to dry the beds out; but the attacks of both pests were so severe at times that it is quite safe to assume that the cutting back of the plants to free them of the stem borer resulted in a certain backwardness in the crop.

The leaf miner in most cases confined its activities to the bottom leaves, but where they attacked newly planted seedlings their attack was severe enough to cause total destruction of the plants. In a few cases the attack by leaf miner caused severe "priming," and incidentally eliminated the harvesting of a great deal of poor leaf, which would have, perhaps, been harvested to the detriment of the crops concerned.

Generally speaking, individual areas have been reduced considerably due to one cause or another, but principally to the failure of seed-beds due to damping off and blue mould. Crops generally are returning light yields, due, it is thought, to the rapid growth made by the crops after the heaviest of the rains had passed. The later planted crops, because of their slower growth, are showing heavier yields, although lacking both the quality and colour of the earlier planted crops. The percentage of bright leaf produced is high, and should be equal if not higher than that of the first season, 1931-1932.

Quality of leaf generally is excellent, showing fine texture with good body, and, taken all round, is perhaps the best samples of leaf produced.

The number of growers and the approximate acreage planted and estimated yields of leaf are as follows:—

Sub-District.	Number of Growers.	Approximate Acreage.	Estimated Quantity of Leaf.
			Lb.
Woodstock	22	104	38,644
Hervey's Range ..	12	38	7,472
Bowen	19	112	27,880
Collinsville	4	17	6,832
Home Hill	6	37	10,640
Inkerman	3	7	2,360
Reid River	1	3	1,200
Bohle River	1	5	1,000
Argea	1	5	800
Ravenswood	1	5½	6,720
Charters Towers ..	7	21	18,480
Mareeba	400	1,500	448,000
Dimbulah	123	620	246,400
Totals	600	2,455½	816,430

MAIZE.

The estimated area under maize on the Atherton Tableland is 18,000 acres for the past season, a much reduced area as compared with the figures for previous years. The reduction is attributable mainly to exceptionally heavy and continuous rains in early summer, which hampered seriously the preparation of the land.

The estimated yield is approximately 7,000 tons, the lowest in the history of the Atherton Maize Pool.

Further experiments were conducted during the season on a Tableland farm by the application of filter press cake on "bad patches," which have been a source of trouble to the local maize growers for many years. The filter press cake was broadcast over the area, and then ploughed in; the area treated was half an acre. The growth of the plants on the treated area show a considerable improvement, when compared with the control plots. Harvesting of the plot is not expected to take place until next month.

PIG RAISING.

The total number of pigs handled by the North Queensland Bacon Company up to 31st

May was 8,507. The following list gives the monthly killings, together with prices paid by the pool:—

Month.	Number of Pigs Killed.	Prices Paid for Prime Bacon.
1933.		
June ..	701	..
July ..	665	4¼d. per lb.
August ..	709	5d. per lb.
September	633	5d. per lb.
October ..	724	5d. per lb.
November ..	842	4¾d. per lb.
December ..	687	To Dec. 14th; 4¾d. per lb.; Dec. 21st-31st 5d. per lb.
1934.		
January ..	877	5d. per lb.
February ..	569	4¾d. per lb.
March ..	668	To 7th to 14th, 4¾d., 4¼d.; 21st to 31st, 4d.
April ..	668	4d. per lb.
May ..	734	7th to 14th 4d. per lb. 21st to 31st 4½d. per lb.

For the past twelve months the supply of pigs to the bacon factory has fallen off considerably, and this can be accounted for by the low prices paid for pigs. The percentage of condemned pigs supplied to the factory is showing a satisfactory decrease.

DAIRYING.

Seasonal conditions have been most unfavourable from the dairymen's point of view. The abnormal rainfall experienced throughout the season was responsible for creating a very rank growth of grass, and the quantity of butter per cow produced has not been as heavy as other seasons of medium rainfall.

The approximate output from the several factories was as follows:—

	Tons.
Malanda (two factories)	1,500
Millaa Millaa Co-operative Butter Company	300
Ravenshoe Co-operative Butter Company	180
Julatten Co-operative Butter Company	112
Daintree River Development Company, Limited	60

Silkwood Co-operative Butter Company was destroyed by fire late last year, and many of the suppliers forwarded their cream to Ingham.

Cheese.—Two factories on the Atherton Tableland produced approximately 100 tons.

PASTURE IMPROVEMENT.

In pursuance of a policy of introducing the more suitable grasses throughout the districts, a subsidised plot was established at Charters Towers in addition to the subsidised plot at Woodstock. At the latter, good progress has been made with the following grasses, viz.:—

Panicum coloratum.—This grass appears to be most outstanding. Extension work has been carried out by the distribution of rootlets from original stools. The natural growth has been very quick and covered the whole of the area planted. It is practically free from weed growth. The present height is approximately 6 feet 6 inches, and it has seeded very freely. The grass is carrying an enormous quantity of dark green foliage, indicating that it should withstand hard grazing. The stools are large and inclined to coarseness, which, however, may be reduced by grazing. The root system is good.

Urochloa Pullulans.—The growth of this grass is inclined to be spreading in habit, and it has produced a good body of soft, fine feed. Seeding very freely, it appears to be a grass capable of standing intense grazing.

Urochloa trichopus.—This grass has same habit (spreading) as pullulans; is not so robust a grower, producing a soft and green foliage, and it has made little, if any, progress.

Digitaria eriantha (Woolly Finger).—This grass has been extended, and the new area planted has made remarkable progress. So far, indications have been that it is likely to prove well suited to the northern areas. One chief characteristic of this variety was the way in which it grew so rapidly, producing a large body of feed, indicating that once it is established it should stand constant grazing.

Setaria aurea.—A tall growing grass carrying a fair amount of foliage, but inclined to be rather coarse—this may be due to continual growth; it is a poor seeder.

Panicum antidotale (Blue Panic).—This is showing fair growth, but if left ungrazed it is inclined to grow very coarse. Under field conditions in the Ingham district, it has withstood hard grazing.

Fine Stemmed Guinea.—This variety is not so coarse as the ordinary *panicum maximum.* Tall growing with a much finer stem and foliage soft, it has a typical spreading flower head, showing robust growth—seeds very freely and should stand hard grazing. Appears to suit the heavier rainfall conditions.

Cynodon plectostachyum.—Although mostly making a strong growth, it has produced succulent feed, and shows indications of adapting itself to the more dryer climates. This grass is in the Charters Towers plot.

Hyperrhenia rufa.—This grass is similar in habit to Cynodon, but appears to make but little if any progress.

In addition to the foregoing, four strains of seed of *Lespedesia sericea* received from Head Office were planted on the 24th February, 1934. Details are as follows:—

Korean.—Germination good, plants about 4 inches high, growth inclined to be weak. This strain shows best growth at present stage.

Kobe.—Germination irregular, only an odd plant showing, growth weak.

No. 12687.—Germination only fair, similar characteristics to Korean.

No. 04730.—Germination good, growth weak.

In all instances these plants appear to be very delicate, and do not show any signs of withstanding hard conditions.

Grasses giving excellent results under tropical conditions are molasses (*Melinis minutiflora*), giant couch (*Panicum muticum*), and *Paspalum dilatatum.*

In the Ingham, Cardwell, Tully, and Silkwood districts these grasses have made wonderful growth under conditions of high rainfall.

In addition to the grass improvement trials already established, further test plots were inaugurated at the following centres:—Silkwood, clump Point, via El Arish, Euramo, via Tully, Kennedy, via Cardwell.

The distribution of grass seed cuttings and rootlets of the varieties available has been made to numerous farmers.

Stylosanthes sundaisa ("Wild lucerne").—This important legume is making rapid spread, and the general growth during the past season has been phenomenal. In many instances it appears to be taking control and choking out the native grasses.

Spartina Townsendii.—This salt water grass established on the banks of the Ross River has practically died out. The hot weather prevailing during the summer months was responsible for its failure.

PEANUTS.

The area planted with peanuts for the 1933-34 season was more than double that of the previous year. The area under crop is estimated at 1,000 acres with a total yield of, approximately, 400 tons. To the high rainfall experienced during the growing period is due the inferior quality of the nuts, as compared with the crop of the previous season.

In the Dimbulah area a trial plot has been established. The variety used was Red Spanish in reddish, sandy soil. Date planted, 28th December, 1933; replanted 16th January, 1934; fertilizer applied, 300 lb. meatworks per acre.

Very heavy rain fell immediately after planting, with the result that a large quantity of the seed was washed out. On replanting heavy rain again fell, but, apart from washing out of a few seeds, the plot eventually presented a fair stand. Good growth was made throughout the area, although the tops were light. On harvesting, quite a good showing of nuts resulted with apparently a very small percentage of inferior nuts. Owing to the unsuitable weather conditions the plot has not yet been threshed, and as a consequence no yield is at present ascertainable.

COTTON.

In the Mareeba district approximately 200 acres of cotton has been planted, but owing to the heavy rains experienced the returns have been very disappointing. The estimated return is 30 tons, and the quality below that of last season. In the Dimbulah area, variety trials were carried out. The land selected in both instances had grown tobacco for two years. Details are as follows:—

A.—Soil, red sandy loam; date planted, 21st December, 1933; germinated, 25th December, 1933; varieties, Lone Star, Durango, Mebane, and Indio Acala (Indio Acala failed to germinate); yield, Durango, 648 lb. per acre, Mebane, 684 lb. per acre, Lone Star, 684 lb. per acre.

B.—Soil, grey sandy loam; date planted, 18th December, 1933; germinated, 22nd December, 1933; varieties. Lone Star, Durango, Mebane, and Indio Acala (Indio Acala failed to germinate).

The returns from this plot are yet incomplete.

It would appear that after two years trials with cotton that a heavier yield will have to be obtained, and this is only possible with the use of fertilizer. Whether the increase in yield will compensate for the application of fertilizer, and allow a margin of profit over working expenses, remains to be proved. Unfortunately, this crop clashes with tobacco, and for this reason makes it very hard for a small grower to successfully handle both crops.

In the Woodstock district variety trials were carried out with the following varieties:—Durango, Lone Star, Acala, Lightning Express. Virgin land was selected for these trials; it was prepared early and was in good tilth for the planting. Following are the particulars:—

Soil, a good sandy loam; planted, 26th October, 1933; germinated, 3rd November, 1933.

Wet conditions prevailed during January and February, causing considerable loss. Plants made an excessive growth and averaged over 6 feet high.

From general appearance there was no material difference in the varieties. The returns per acre were:—Durango, 872 lb.; Lone Star, 781 lb.; Lightning Express, 778 lb.; Acala, 768 lb.

Other plots planted in the Woodstock and Hervey's Range districts are as follows:—

Woodstock.—A, Acala; B, Durango and Lone Star; C, Lone Star.

Hervey's Range.—A, Durango, Lightning Express, and Acala.

Harvesting was proceeding at the time of writing, so returns are incomplete.

POTATOES.

In the Dimbulah district only small areas, confined chiefly to creek flats and sandy loams, were attempted, with only fair results. Lack of fertility in the soils being the main difficulty. The leaf miner caused considerable damage to all crops, and this pest is likely to be a yearly occurrence where the crop is grown in close proximity to tobacco.

On the Atherton Tableland approximately 200 acres were planted, but owing to the heavy summer rains the early crop was practically a failure. The late crop has suffered considerably from blight.

OTHER CROPS.

Cowpea Trials.—At Dimbulah, local farmers co-operated with the Department in planting up this trial. The land selected was red, sandy soil, which had grown tobacco for two years. Following are the particulars:—Variety, Black; planted, 7th February, 1934; germinated, 12th February, 1934; seed was broadcasted; yield, 2½ tons of green fodder per acre.

Throughout the crop, plants were badly affected with nematodes which greatly reduced the yield.

SUDAN GRASS.

Several plots of this fodder were experimented with, and fairly satisfactory results obtained. Local growers co-operated with the Department in carrying out these trials. Particulars of which are:—

A.—Soil, coarse white sand; date planted, 7th February, 1934; previous crop, tobacco for two years; yield, no record made.

This plot made such very poor growth, beginning to yellow at a very early stage, that no estimate of it was made. It is thought that if the crop were planted earlier on this type of soil a much heavier growth would result.

B.—Soil, red sandy soil; date planted, 9th February, 1934; previous crop, tobacco two years; yield, no record made.

This plot also made disappointing growth, being slow with yellow patches appearing at an early stage. Horses were eventually turned on to it, and although eaten out on several occasions regrowth took place, with the result that a good grazing was almost continually available. No record taken of this plot on account of its short growth.

C.—Soil, reddish sandy soil; date planted, 10th February, 1934; previous crop, tobacco, two years; yield, 6 tons of green fodder per acre.

The plot made very slow growth for a period; after the cyclonic rains in March excellent growth resulted, the plot eventually showing a good body of green fodder.

D.—Soil, brown sandy loam; date planted, 10th February, 1934; previous crop, tobacco, two years; yield, 4½ tons green fodder per acre.

As with C plot, this crop also made slow growth until the cyclonic rains in March, when the crop grew quickly. One plot gave a return of 8 tons per acre.

Apart from the experimental plots, quite a number of small areas of this crop were planted with most promising results. The areas planted early in the season—up to mid-December—produced heavy crops of green fodder, being fine in the stalk and carrying food leaf and would have made excellent hay. However, most of the crops were turned under as green manure, but in every case have produced very nearly an equal growth of green stuff. From the second growth that has been made in these crops, it would appear both a wise and profitable scheme to sow this crop early in the season, cutting the first crop for hay and turning the ratoon, or second growth, under as a green manure. This crop planted later in the season appears to miss that maximum growing period which is apparent in all crops grown in the North, and, as a consequence, growth is not so vigorous and yields are considerably reduced.

On the results obtained this season with Sudan grass, it is safe to predict that a considerable area will be planted next season.

BROOM MILLET.

About 20 acres of broom millet was planted at Carbeen this season. During the early period of growth the crop showed great promise but, unfortunately, wet conditions prevailed over a long period which evenutally ruined the crop.

ONION TRIALS.

Variety trials were arranged for in the Mareeba area with local farmers at Koah, Mareeba, and Evelyn.

Varieties being used in the trials are Early Hunter River, Brown Spanish, Extra Early Golden Globe, White Imperial, and Silver King.

Most of these plots were planted early in April. Unfortunately the germination was not considered satisfactory enough to warrant continuing the experiments.

ROMA STATE FARM.

Mr. R. E. SOUTTER, Wheat Breeder, reports as follows:—

The dry conditions prevailing when the last annual report was submitted were wholly dispelled by good rains in July and August. During the following three months the conditions were very wet; then a dry period was experienced during December and January which, fortunately, was not accompanied by high temperatures. In February conditions improved, but in March another dry spell set in which continued with some brief breaks until June.

Rainfall for the twelve months ending 30th June:—

Month.	Wet Days.	Heaviest Fall.	Total.
July	12	129	461
August	8	54	98
September	6	195	294
October	5	179	309
November	13	171	424
December	12	32	92
January	4	52	89
February	7	181	362
March	2	39	40
April	4	44	72
May	4	53	61
June	4	42	99
Total	..	..	2,401

WHEAT SOWINGS, 1933.

It was mentioned in the Annual Report for 1932-33 that 115 points of rain fell during the first week of April, but, unfortunately, during the subsequent eleven weeks only 27 points were registered. However, on the 23rd June a fall of 73 points was gauged, which enabled sowings to be made on the light soils; but it was not until the second week in July that sufficient rain fell to enable sowing to become general, making the season at least six weeks late. Good growing conditions prevailed throughout August and September, and the crops responded wonderfully, although rust appeared in some of them about this time and, before the season closed, wrought havoc in the late sowings of the more susceptible varieties.

Generally the crops were ready for harvesting by the end of October but, owing to wet weather setting in, operations were considerably delayed with a corresponding reduction in the quality of the grain. It was not until the second week in December that the last of the crop was removed here, whereas in an ordinary season it is all in the barn by the end of October.

One of the pleasing features in connection with the grain harvested is that, notwithstanding the extent of wet weather it was subjected to after ripening, its germination has not been greatly impaired and, so far, it is much freer from weevil infestation than was anticipated.

The latter is no doubt due in a great measure to the fact that the ground became so boggy at harvest time as to preclude operations, and by the time is was in a condition to carry the teams and machinery the excess moisture had dried out of the grain and it went into the bag with a normal moisture content.

The sowings made, and results, are as follows:—

Manurial Experiments.

Var. Wheat: Bunge No. 1. Sown May, first week; germinated, July, first week.

Rate: Half bushel to acre.

	Manure applied per acre.	Cost per acre.	Yield per acre 1933.	Average yield 18 Years.	Remarks.
		s. d.			
1	1 cwt. Cereal Manure	10 0	16·4	16·2	Soil sandy loam. A little moisture lost through extra working received on border when breeding section was ploughed.
2	1 cwt. Cereal Manure .. .. ½ cwt. Nitrate Soda (top dressed)	10 0 7 11	20·4	17·5	Soil sandy loam; crop medium height, fairly free of rust.
3	½ cwt. Cereal Manure .. .. ½ cwt. Nitrate Soda (top dressed) ..	5 0 7 11	20·9	18·7	Soil little more loamy than 1 and 2; crop medium height, fairly free from rust.
4	Unmanured	..	23·6	15·9	Soil little more loamy than 1, 2 and 3; fairly even.
5	1 cwt. Superphosphate	5 6	22·6	17·5	Loamy soil.
6	1 cwt. Basic Stag	10 6	19·4	16·8	Loamy soil; crop a little irregular, due to soil irregularities.
7	5 tons Stable Manure .. .. ½ cwt. Superphosphate	25 0 2 9	19·4	16·7	Soil little heavier; crop flaggy.
8	½ cwt. Superphosphate .. .. ½ cwt. Nitrate of Soda	2 9 7 11	14·7	15·7	Crop irregular; soil in this block heavier and clayey near surface.
9	½ cwt. Superphosphate .. .. ½ cwt. Sulphate of Potash .. .. ½ cwt. Nitrate Soda	2 9 9 3 7 11	21·1 bushels	14·2 bushels	Soil in this block poor mechanically.
10	½ cwt. Dried Blood .. .. .. ½ cwt. Sulphate of Potash .. .. 1 cwt. Superphosphate	5 4 9 3 5 6	20·2	15·6	Western end of this block sandy loam; balance of a clayey nature.
11	Unmanured	.. bushels	18·7 bushels	14·2	Ditto
12	½ cwt. Dried Blood .. .. .. ½ cwt. Sulphate of Potash .. .. 1 cwt. Basic Slag	5 4 9 3 10 6	17·3	16·4	Slightly better than 9, 10, 11; good deal of grain lost through crop being down.
13	½ cwt. Dried Blood .. .. .. ½ cwt. Sulphate of Potash .. .. 1 cwt. Superphosphate .. .. ½ cwt. Nitrate of Soda	5 4 9 3 5 6 7 11	18·8 bushels	15·5 bushels	Soil similar to 12; good deal of grain lost through crop being down.

Two-acre Blocks.

Sown May. Germinated 1st July.

Rate, 33 lb. per acre. Manure, 56 lb. superphosphate per acre.

Block.	Bushels per acre. Yield.
1. B.I.P. x M. 2804	20.6
2. C.B.2A. x Gl. 2901	16.4
3. C.C.C. 2704	19.2
4. Pacific	15.8
5. Pusa x Warren 3004	13.8
6. Seafoam	18.8

Quarter-acre Section.

Sown, May, third week. Germinated, July, first week.

Rate Seeding, 33 lb. per acre. Manure, superphosphate, 56 lb.

Block.	Yield per acre. bushels.
1. B.F.G. 2627	26.6
2. B.F.G. 2902	21.6
3. B.I.P. x M. 12	21.6
4. B.I.P. x M. 2610	32.1
5. C.C.C. 2708	25.8
6. Gem	22.4
7. Novo	30.4
8. Pacific	25.4
*9. Pusa x Flora 3216	29.1 (rusty)
*10. Pusa x Three Seas 3216 ..	39.5 (clean)
11. Reward	26.6 (rusty)
12. S.E. x C.C.C. 3005	31.6 (rusty)
13. Watchman	16.1 (very rusty)

* The varieties Pusa x Flora and Pusa x and Three Seas have been selected for extended trial on the Darling Downs during the forthcoming season.

Field Blocks.

Bunge No. 1.—Area, 11 acres. Sown, May, second week. Rate, 33 lb. per acre. Germinated, July, second week. Manure, ½ cwt. super. per acre. Cut for hay. Yield, 11 tons.

Clarendon.—Area, 7 acres. Sown, May, second week. Rate, 33 lb. per acre. Germinated, July, second week. Manure, ½ cwt. super. per acre. Cut for hay. Yield, approximately 1 ton per acre.

Clarendon.—Area, 13 acres. Sown, June, first week. Rate, 33 lb. per acre. Germinated, July, second week, Yield, 10·7 bushels. Very heavy crop in appearance; grown on creek flat. Rust reduced yield very considerably.

Florence.—Area, 1½ acres. Sown, June, first week. Rate, 33 lb. per acre. Manure, ½ cwt. super. Germinated, July, second week. Cut for hay. Yield, 1½ tons, approximate.

Florence.—Area, 18 acres. Sown, June, first week. Rate, 33 lb. per acre. Germinated, July, second week. Yield, 10·5 bushels per acre.

Florence.—Area, 32 acres. Sown, June, second week. Rate, 40 lb. per acre. Germinated, July, second week. Yield, 10·2 bushels per acre, approximate. Ten acres of this block came up very thin and were not harvested.

Pusa and Warren, 3004.—Area, 5 acres. Sown, June, first week. Rate, 33 lb. per acre. Germinated, July, second week. Yield, 14·5 bushels per acre. The season was too late for this selection. Had germination taken place a month earlier the results would no doubt have been much more favourable. At Kincora on the farm of Mr. G. J. Will it made a good showing, and this grower hopes to put in a fair area of it this season.

Seafoam.—Area, 10 acres. Sown, June, first week. Rate, 33 lb. per acre. Germinated, July, second week. Yield, 23·7 bushels per acre. In appearance this was one of the poorest crops harvested but it returned more than twice as much grain per acre than the blocks of Florence and Clarendon growing on either side of it.

Three Seas.—Area, 1½ acres. Sown, May, third week. Rate, 33 lb. per acre. Manure, ½ cwt. superphosphate. Germinated, July, second week. Yield, 33·3 bushels per acre.

Feeding-off Tests.

This experiment was permitted to lapse owing to germination being delayed until late in the season, as it was considered that any data secured would consequently be of comparatively little value.

WHEAT SEASON, 1934.

Sowing operations have been greatly hampered again this season, owing chiefly to unfavourable weather, although the unwelcome presence of grasshoppers rendered it necessary to defer planting the single drills and other small sowings until they had disappeared. Two acres sown in April, and which came up well as a result of 71 points of rain which fell the day following their being put in, were wholly destroyed by this pest. As a result of the precipitation during the last three weeks, which totalled 98 points, all the wheat dry sown has come up fairly satisfactorily. Very little matting has taken place; so that the season is very little, if any, later than last so far as we are concerned.

Pelshenke Test.

Thanks are due to the Agricultural Chemist and his staff for their co-operation in testing a number of the newer crossbreds, both as to their protein content and gluten quality. Some of the wheats turned out to be quite satisfactory, as the table submitted shows, and are worthy of being tested as to their suitability in other directions.

Laboratory No.	Variety.	Moisture.	Protein.	Specific Gluten Quality.
4335	Amby	10·82	9·5	16·8
4336	B.F.G., 2627	10·58	13·9	3·9
4337	B.F.G., 3206	10·9	12·0	2·2
4338	C.C.C., 2708	10·96	14·9	12·2
4339	Clav. + Garnet, 3014	10·62	11·2	3·6
4340	Guyas + Warren, 3302	10·66	11·5	5·9
	Pusa + C.C.C.—			
4341	3215	10·66	10·6	2·9
4342	3301	10·80	11·2	3·8
4343	3302	10·8	11·2	3·8
4344	3303	10·64	11·4	4·0
4345	3304	11·10	11·2	3·8
4346	Pusa + T. C. + S.E. + T.S. 3202	10·84	11·4	11·5
4347	Pusa + T.S. + S.E. + T.S.— 3203	11·12	10·2	12·2
4348	3220	10·92	10·5	6·8
4349	3222	11·18	12·2	9·3
4350	3301	10·70	12·2	8·0
	Pusa + Gluyas—			
4351	3002	10·58	11·8	2·9
4352	3301	10·88	10·7	3·2
	P. + G. + Pusa—			
4353	3209	10·44	10·6	2·5
4354	3211	10·34	10·8	2·9
	Pusa + Novo—			
4355	3016	10·26	10·2	6·0
4356	3203	10·72	10·3	9·6
4357	Red Watchman	10·78	10·5	3·0
4358	Seafoam	10·24	10 7	13·6
4359	Seaspray	10·04	10·0	3·2
4360	Warrior + Ramburico, 3303	10·54	10·4	4·6
	Warchief + Ren + Ren	10·45	14·4	9·0

Although the Pelshenke test gives some idea as to the quality of the loaf a flour will produce, it does not indicate whether it will be pleasing in appearance or otherwise; this can only be ascertained by actual baking tests.

Vernalization.

Vernalization is the name which has been bestowed upon a method of seed treatment which has for its objective the shortening of the period between germination and the fruiting of "Long Day" plants sown under fair conditions. It has been applied successfully commercially in Russia in connection with wheat, where autumn sowings from some cause or other failed, by resowing these areas with seed of a winter wheat which had been vernalized in the spring.

Although vernalization of wheat for commercial purposes is not likely to be necessary in Queensland in connection with the varieties at present in general cultivation, it will prove of very considerable value to the wheat breeder. By its application it will be possible to so hasten the maturity of long season wheats, such as Hope Webster, Kanred, &c., as to enable them to be used for crossbreeding purposes, which at present is impossible here without having recourse to one or other of the methods in vogue for the supplying of the extra daylight.

VINEYARD.

The growth made mention of in connection with the new section last year has been well maintained during the period under review. The crop was rather disappointing, as the continuous wet weather at the beginning of the season was most favourable for the development of insect and fungoid pests which, acting in conjunction with the heavy rain in February, so impaired the quality of the fruit as to render much of it unfit for market.

The Henab Turki, which is a good cropper and excellent carrier and finds a ready sale at good prices, was the greatest disappointment, for only a partial fecundation took place. This is the third year that this has occurred, but not to the same extent previously. Whether the failure of this variety to set its fruit is due to climatical conditions, self-sterility, or soil deficiency has not yet been determined, although the impression has been gained that it is due to a combination of the first two, the sterility of the pollen being due to the former. Mildew and fruit fly further reduced the yield.

The new seedling vines put out last season represented the following crosses:—

Zante x Gordo x Muscat-Hamburg.
Zante x Gordo x Henab Turki.
Muscat-Hamburg x Grand Turk.
Gordo x Henab Turki.

These have in many instances made fairly good growth; nevertheless it is proposed to make an application of complete fertilizer this coming season.

Of the seedlings set out three years ago, three or four appear to be of some promise.

Six rows of vines, which included two rows of Gordo and four of wine varieties, have been taken out of the old vineyard, and it is proposed to utilise the area which was occupied by them for the growing of summer crops for a few years and then replant with a good commercial variety.

ORCHARD.

Citrus.—As many of the trees in this section —owing to the unfavourable seasons, white ants, and other causes—are in an unfruitful condition, it is proposed to further reduce the number. Owing to circumstances, the seven Navel x Grape-fruit two-year-old trees were not transplanted last season, but they will be set in their permanent positions this season.

Deciduous Section.—Although some of these trees will have to be dug out in the near future owing to decay, growth on the whole has been well maintained, and the trees for the most part set fairly heavy crops of fruit, which, unfortunately, was wholly destroyed by the fruit fly which appeared exceptionally early in the season. Although numbers of flies were trapped, the fruit showed 100 per cent. strike.

PUMPKINS.

This crop again gave poor results on the sandy soil, due, no doubt, in no small measure to the injury occasioned by the nematode, in conjunction with the hot, dry spell experienced during December and January. Nevertheless, sufficient selfed seed has been secured for sowing next season on the more loamy soil on the creek flat, which at present is lying fallow. In this location the nematode is not so bad, and the soil temperature not so high in the summer.

WATER MELONS.

Last season was one of the most unfavourable we have experienced here for this fruit, the crops being late and small individually and collectively, and not by any means up to the usual standard in flavour. The three American wilt-resistant varieties—Iowa Belle, Iowa King, and Pride of Muscadine—were grown with a view to pure seed production, but evidently the conditions were against successful hand pollination, for of the many hundreds of flowers dealt with only a very small percentage set, and these were confined to the varieties Iowa Belle and Iowa King, chiefly the latter, which appears to be the most suitable.

FETERITA.

A number of drills of a quick-maturing strain of this grain sorghum were put in, but owing to the depredations of numerous parrots very little seed was obtained.

SOUDAN GRASS.

Six selections of this were sown again last season in drills 9 chains long, with the individual plants 6 feet apart in the drills and 12 feet apart in the rows. As all showed variation, flowers on six plants of the desired type were selfed for sowing this season.

PEANUTS.

Peanuts were sown on 7th September in rows 4 feet apart; plants 3 feet apart. They made fairly good growth in the early part of the season, but failed to produce nuts.

In the 1932 season a plant of this variety was encountered with a hermaphrodite flower which was subjected to controlled pollination, and last season this peculiarity was met with amongst the plants emanating from the seed obtained from this flower and seed obtained for sowing next season.

There has been grown at Roma for a number of years a variety in which all the flowers are hermaphrodite and which has retained its individuality, although grown amongst other varieties every season.

OLIVES.

Never before have these trees blossomed or fruited so profusely, but as a result of unfavourable conditions before the fruit had fully developed it was not marketable, and, in consequence, was permitted to remain on the trees, where it is now attracting large numbers of fruit-eating birds. A few cases of fruits of Hardy's Mammoth variety were disposed of.

DATE PALMS.

The older these become the greater is their beauty. Quite a number bore fruit again this last year, but owing to the limited supply of moisture in the soil they, although large, were of poor quality.

COWPEAS.

These have again demonstrated their suitability as a summer protein crop for growing on the lighter soils in the drier districts.

The following sowings were made in 9-chain drills:—

Large White x Skewbald x Poonah.
Snake x Poonah.
Large White x Skewbald.

GRASSES.

The three "Woolly Finger" grasses have again demonstrated their ability to withstand any weather on our sandy soils. Quite a number of rootlets of *Digitaria eriantha* have been distributed, and a fair demand still exists.

Cynodon plectostachyum.—This giant couch is still shaping very well on the light soil, although frost cuts it pretty badly. A number of rootlets of this grass have also been distributed.

Panicum antidotale (blue panic grass).—This was sown in September in drills 9 chains long and 12 feet apart, with individual plants 6 feet apart in the rows. This made wonderful growth —in some instances over 7 feet high. If permitted to grow the stalks become very coarse, but they send out a nice leafy growth from each joint, which stock seem to relish; unlike some of the recently introduced grasses, the blue panic grass is a prolific seeder.

ST. LUCIA FARM SCHOOL.

Mr. J. A. Kerr, Supervisor, reports that during the half-year ended 30th June thirty-six lads who had completed their course of training were placed with farmers, three went to positions on farms of their own selection, and three left to take up positions other than on farms. A number of very good reports has been received from employers of these lads, and the fact that so many of them are proving so satisfactory would indicate that no difficulty will be experienced in placing each batch of lads as they complete their training.

An examination was conducted each quarter by officers of the Agricultural Branch to select a lad for the scholarship to the Queensland Agricultural High School and College, and it was stated by the examiners that excellent work was performed by many of the candidates.

At the present time fifty-one lads are in attendance, half of whom are in residence.

Farm.—At present the area under cultivation comprises 32 acres, including an area of 5 acres which was broken up in May last and is being prepared for the use of the Pasture Improvement Committee. During the season approximately 12 acres of maize was grown. Realising the necessity for fodder conservation, both from a practical and instructional point of view, arrangements were made in February for the construction of a 40-ton silage stack from part of the maize crop. The remainder of the crop was allowed to mature, and over 250 bushels of good-quality grain was harvested, thrashed, and stored in tanks. This should meet the various requirements of the farm until next season, thus effecting a substantial saving.

As a further demonstration of fodder conservation and pasture management, a heavy growth of Paspalum was mown, and two stacks built from the hay produced. The resultant regrowth blended with white clover proved the value of this practice. Other crops grown during the summer months included White Panicum and Japanese millet, all of which were cut for hay and stored for horse feed.

English potatoes, cattle and Beaudesert pumpkins, sorghum, sweet potatoes, and arrowroot were also grown, the arrowroot being used for pig feed. The sweet potatoes yielded an exceptionally heavy crop, and were made use of both for kitchen and for pig feed.

Provision for winter feed for the dairy herd and also for hay for horse feed next summer was made, the autumn plantings including 2 acres of oats (Algerian and Sunrise), over 4 acres of Florence wheat and Dun field peas, ¾ acre of Cape barley, ½ acre of rye and peas, and an acre of Italian rye grass. Half an acre of mangels are promising to supply a good crop for pig feed, while a block of Swede turnips are now supplying the kitchen, the excess to be used for pig feed.

A acre and a-quarter of lucerne was established in May. Land has been prepared for early plantings of arrowroot and English and sweet potatoes. The maize land has been ploughed and allowed to lie rough before breaking down for next season's maize plantings.

A small bridge built across Carmody Creek has simplified and shortened the connections between the various parts of the farm.

Together with minor fence repairs, a new fence has been erected, dividing the pasture into two sections. More fences will be necessary to enable an economic handling of the pastures.

Garden.—The vegetable garden has been extended to almost double the original area, and the irrigation sprays installed here. These alterations make it possible to produce practically all of the vegetables required by the dining hall. In order to ensure a sufficient supply of water for the irrigation of the garden, the height of the overflow pipes of the dam was increased by 2 feet, thus almost doubling the capacity of the dam.

Dairy.—Ten new springers were added to the dairy herd during April and May, bringing the total to thirty. This increase provides a herd large enough to give the necessary training in milking. Calf-feeding bails were erected in June, bush timber cut at the Moggill camp being used for the structure. The construction of new milking bails is essential, and should be commenced as soon as possible.

Piggery.—Four breeding sows—two Tamworths, one Large White, and one Berkshire—are used in the piggery, with a Large White pedigreed boar.

During the past six months two sows farrowed—a Tamworth having a litter of nine, and the Berkshire a litter of thirteen. Six sows were sold to the Animal Health Station in January from an earlier litter, and three barrows from the same litter were bacon-cured for use in the dining hall. From the Large White sow three purebred boars and one purebred sow were sold to various farmers.

New piggeries are planned.

Poultry.—Only a small poultry flock is kept, but this will be increased to supply the requirements of the farm kitchen. The possibility of running a few ducks on the lagoon has been inquired into.

Moggill.—The camp at Moggill has given the necessary training in bush work—clearing, felling timber, splitting posts, &c. All supplies of bush timber, posts, &c., for St. Lucia are drawn from this source. Three acres of banana land has been cleared and fenced, and 2 acres of the block planted.

A new camp has been constructed of bush timber with lime-washed jute walls and iron roof. This was necessary owing to the permanency of the camp. Nine trainees are sent to this camp for weekly periods. The cooking at the camp is done in turns by the trainees themselves.

Lectures.—Lectures are given for a period of one hour each Monday, Wednesday, and Friday. Dairying, Piggery Management, Horticulture, and Poultry are treated by officers of the Department of Agriculture and Stock, while lectures on Agriculture are given by the Training Farm staff.

Recreation.—To provide a suitable reading-room for the boarders a storeroom was cleared, tables and forms supplied, and the wireless placed in the room. The walls of the room were then fitted with products of the various branches of Agriculture, an endeavour being made to establish for educational purposes a small Agricultural Museum.

Through the generosity of the proprietors of the three Brisbane dailies, copies of their publications are supplied to the farm learners' library free of charge.

The football ground has been improved, and the match against the Department of Agriculture promises to become an annual fixture.

A tennis court built during the last few months has proved very popular during spare time.

To the loyal service of the staff must be attributed much of the success of the St. Lucia Training Farm in fulfilling the objects of its establishment.

REPORT OF THE SENIOR INSTRUCTOR IN PIG-RAISING.

Mr. E. J. Shelton, Senior Instructor in Pig-Raising, reports:—

Pigs intended for the local or frozen pork trade are dealt with by private contract or are purchased at auction sales by exporters who have wholesale and retail distributing houses in the United Kingdom and other parts of the world. In addition, the Queensland Meat Industry Board annually treats many thousands of pork carcasses at the Brisbane Abattoir. Private butchering establishments in the city and country handle pork carcasses, and these, plus auction sales in the metropolitan and in many provincial and country centres, provide a ready market outlet for any pigs not dealt with at bacon factories.

Although the annual slaughter of pigs in this State now totals approximately 400,000 head, it may be claimed that the industry is still in its infancy.

While it is difficult to obtain really up-to-date statistical data, it is safe to say that there has been a marked increase in consumption of pork products within the State and Commonwealth, and a widening outlet on overseas markets for surplus products.

The consumption of fresh pork per capita in this State in 1923 was 6·74 lb. This had increased in 1932 to 8·59, although the total per capita consumption of meat of all classes had dropped from 224·56 lb. in 1923 to 219·16 lb. in 1932, the greatest drop being in beef, of which the figures are 186·13 and 151·49, with an increase of from 27·10 lb. to 53·57 lb. of mutton and 0·92 to 1·98 lb. of lamb. No figures are available in this State to show consumption per capita of bacon and hams, but it is believed to be about 12 lb. or a total consumption of approximately 20 lb. of pork products per capita, the total meat consumption being 219·16 lb., made up as follows:—

	lb.
Beef	151.49
Mutton	53.57
Veal	3.53
Lamb	1.98
Pork	8.59
	219.16

As an interesting comparison it is worth quoting American figures for a similar period:—

Pork consumed per person	70.3 lb.
Proportion of Pork to all meat consumed	50.0 per cent.

AUSTRALIAN PRODUCTION.

The Australian average annual production of bacon and ham is shown, approximately, in the following table:—

	lb.
Queensland	20,000,000
New South Wales	20,000,000
Victoria	18,000,000
South Australia	7,000,000
West Australia	3,500,000
Tasmania	2,000,000
Federal Capital Territory	300
Total for the Commonwealth	70,500,300

EXPORT TRADE.

Export of the products of an industry assumes two forms—one where export outlets are utilised to dispose of surplus products, and the other where export trade is built up as a special marketing activity, even if it is necessary to utilise products that could be disposed of locally to maintain regularity of supply.

Up to the present Queensland's export of pork products has been on the lines of the first mentioned, and once supplies are reduced by seasonal conditions, or otherwise, the export trade automatically ceases, and the goods are disposed of locally, possibly to more advantage temporarily. It is evident if the industry is to further expand, and if pig-raising is to take on more of the form of a specialised business, we shall have to depend on export trade.

BACON FACTORIES AND MEAT WORKS.

One advantage this industry possesses in regard to increase in export and in local consumption is that all the factories treating pigs could largely increase their output without incurring additional expense in plant and machinery. Most of the bacon factories are working at less than 75 per cent. of their capacity, while it is understood the Brisbane Abattoir and other export meat works could more than double their output with their existing plant.

The Darling Downs Co-operative Bacon Association, Limited, extended its operations during the year, and opened new works at Doboy, near Brisbane.

Bacon factories, co-operative and proprietary, are situated at Murarrie, Willowburn, Doboy, Mareeba (North Queensland), Zillmere, Oxley, Warwick, Maryborough, and Rockhampton, with smaller factories at Geebung and in other centres. All these factories draw supplies from far-flung areas, and have regular trucking days at country centres.

Pork butchers operating at the Brisbane Abattoir purchase their requirements at the weekly auction sales at Cannon Hill; they also have agents and itinerant buyers in country districts. Thus, in addition to auction sales at country centres, adequate market outlets now exist for all grades of pigs.

BREEDS OF PIGS.

The Better Boar Subsidy Refund Scheme in operation over the period August, 1933, to 30th June, 1934, resulted in a wide distribution of pedigreed boars in the Large and Middle White breeds, and in increased interest in the development of more extensive outlets for Queensland pork in the markets of the United Kingdom.

This scheme terminated on 30th June, 1934, and has been replaced by a scheme fostered by the Rural Assistance Board of the Agricultural Bank. Under this scheme the Board, acting in co-operation with the Agricultural Bank and Department of Agriculture and Stock, advances on loan 50 per cent. of the landed cost of boars, four months to two years of age, of the following breeds:—Large White, Middle White, Tamworth, and Berkshire. Loans are repayable on easy terms over a period of two years.

British breeds of pigs are in principal demand throughout this State, the five breeds represented being the Large White, Middle White, Berkshire, Tamworth, and Wessex Saddleback. It is recognised that these breeds supply the class of carcass required.

There has been a firm inquiry for all classes of pure bred pigs throughout the year.

PIG-FEEDING TESTS.

The pig-feeding tests referred to in the last Annual Report have been continued throughout the year, and have proved of interest and value to the industry. Full particulars of these tests and data collected to date are appended to the report of the Director of the Animal Health Station.

PIGS AT STATE FARMS AND INSTITUTIONS.

Regular inspection of the pigs and piggeries are made at the following farms and institutions:—

Mental Hospital, Goodna.
Mental Hospital, Sandy Gallop, Ipswich.
Mental Hospital, Willowburn.
Jubilee Sanatorium, Dalby.
Benevolent Asylum, Dunwich.
St. Lucia Farm School, Brisbane.
State Farm, Kairi, Atherton Tableland.
Farm Home for Boys, Westbrook.
Salvation Army Farm, Riverview.

Stud pig-breeding is carried out very successfully at several of these institutions, as well as at the Queensland Agricultural High School and College.

INSTRUCTION BY CORRESPONDENCE.

The Correspondence course of instruction, in which approximately 200 students have enrolled, was continued throughout the year.

PIG CLUBS.

There has been a revival of interest in the Pig Club Section of Home Project Clubs organised by officers of the Department of Public Instruction.

Several Junior Farmer Clubs for youths who have left school are functioning in co-operation with the schools, and no doubt there will be further extension during the coming year.

THE INDUSTRY IN NORTH QUEENSLAND.

Pig-raising has made considerable progress in the far northern areas of the State. Through the activities of the Northern Pig Board and the North Queensland Co-operative Bacon Association, there has been a revival in the inquiry for purebred stock, and an improvement in type and quality of pigs marketed. The health of the pigs in North Queensland is better now than at any previous period.

REPORT OF THE POULTRY EXPERT.

Mr. P. Rumball, Poultry Expert, reports:—

For several years there has been a steady and continued expansion in the poultry industry when measured by the flow of eggs to the Brisbane markets, and during the period under review the rate of expansion of past years has not decreased. This continued development brings with it problems of marketing, and the necessity for the most economic production. No better method could be employed to indicate the position of the industry—with relation to the expansion—than by quoting some figures of the Queensland Egg Board relating to receipts and disposals. These figures, however, only refer to a portion of the State, although applying to the most thickly populated poultry area. For the year ending 1933, the Board and its agents received 3,985,616 dozen eggs. This quantity was 1,960,489 dozen eggs in excess of immediate requirements, necessitating pulping, cold storage, interstate sales, and overseas export. Much of the pulp manufactured would eventually find its way into consumption in the State, as would also many of those cold-stored, but 1,458,480 dozen had to be exported and 265,530 dozen sold interstate. It will be seen, therefore, that out of practically the 4,000,000 dozen eggs coming to Brisbane during the year nearly 1,750,000 dozen were in excess of local requirements, notwithstanding the fact that the average wholesale rate was at the low level of 12·21d. per dozen. These figures indicate in no uncertain way the importance of the export trade in the maintenance of our poultry industry, and the precarious position that would arise by any curtailment of it.

Despite the comparatively low level for eggs, there appears to be every indication that further expansion will take place, although the rate may not be as great as in the past few years. This expansion is due to the more reasonable values of poultry fodder, added facilities for producing stock, and to the fact that many more farmers are keeping larger and better flocks as an adjunct to other rural pursuits.

One big advance during the period under review was the installation by numerous breeders of large electrically-heated incubators. The operation of these machines to their maximum extent will undoubtedly displace many of the older types, but I do not know of many plants being scrapped. This fact also is suggestive of an increase during the coming year.

Although the marketing of eggs is well provided for, the same degree of efficiency is not manifest in the marketing of table poultry. This subject has received for several years the attention of societies interested in the industry, and there is every reason to believe that the marketing of table poultry will be conducted as efficiently as eggs. Projected experiments at the Animal Health Station will indicate to the farmer efficient means of handling our dual-purpose fowls, with the natural consequence of increased attention being paid to this phase of the industry.

Close co-operation has existed between the branch and the Animal Health Station, both in regard to diseases in poultry and nutritional work. It is very pleasing to be able to report that poultry-raisers in general are paying close attention to the results obtained from the various experiments, and many are putting into practice systems of feeding that we have been able to recommend as the result of the investigations conducted at Yeerongpilly. Many breeders do not prepare their own poultry mixtures, and the demand by breeders for rations based upon the experiments at Yeerongpilly has been so insistent that at least one large firm catering for this class of trade has been forced to prepare special lines.

During the period under review officers of the Poultry Section have visited centres from Stanthorpe to Cairns and inland districts where poultry are raised. In the course of these visits, poultry farms are inspected and individual breeders instructed as to the most economic principles to adopt in production. Every opportunity is taken to organise field days and to lecture to breeders. Similar action is taken in the metropolitan area, and it is pleasing to report that in no instance has it been impossible to arrange for lectures when required.

In many of the inspections made of farms due to outbreaks of disease in the most thickly poultry-populated area, officers of the branch have been accompanied by a veterinary officer attached to the Animal Health Station, and there has been the closest co-operation on all occasions.

During the year an egg-laying competition was commenced in the Wynnum district. This test brings the total active tests up to ten. Whenever possible, these public tests are inspected and, without exception, they are efficiently conducted.

In addition to instruction given by means of public lectures, wireless talks, farm visitations, &c., contributions have been made regularly for publication in the "Queensland Agricultural Journal."

REPORT OF THE DIRECTOR OF COTTON CULTURE.

The season under review has been a most exceptional one from the climatic aspect, and also as regards cotton-growing, in that record rainfall has been registered for most of the cotton-growing districts, a most unusually cool summer has been experienced, and the previous record total yield of cotton for the State will be substantially exceeded.

A satisfactory improvement in yields has been obtained, generally speaking, in all but the southern districts, as compared to those realised during the three preceding seasons of the disastrous drought period. The results will be not only of benefit to the growers financially but psychologically as well, for the returns obtained in the dry seasons were naturally most disheartening, especially in the districts which had only been brought under closer settlement in recent years.

Unfortunately, the marketing of the crop has not shown a corresponding improvement. As has been the case in nearly every season since the termination of the period of guaranteed prices, difficulties and uncertainties concerning the sale of the crop arose at mid-season when the financing for the first advances to the growers was being arranged. Eventually, after the spinners had been given definite assurance from the Federal Government that the existing duties would not be altered during the calendar year, contracts were entered into by them to take, roughly, half of the crop which was harvested at the end of June. The qualities not required in Australia will have to be shipped overseas against direct sales or on consignment. Altogether some six to seven thousand bales may have to be sold overseas. The Tariff Board hearings on cotton matters, touched upon in my last report, were not completed in time for their recommendations to be acted upon by the last Federal Parliament. It is not known, therefore, whether further expansion of the spinning industry will develop. It is to be hoped that this will be accomplished, for farmers in all the main agricultural sections of the State are requiring a reliable additional cash crop, and the results that are being obtained from cotton-growing in these areas indicate that this crop is eminently suited from many aspects.

The Commonwealth Bank has again financed the industry, which enabled the first advances on each grower's consignments to be paid on the basis of 80 per cent. of the estimated value, plus premiums for grade and staple lengths when required. The following schedule of first advances sets out the values per lb. of seed cotton for each grade and staple class, and also includes the Commonwealth bounty. This is paid as soon as the cotton is received at the ginnery, and as the moneys accumulate from the sale of the crop further advances are made on a flat-rate basis per lb. of seed cotton:—

Table of First Advances Per Lb. of Seed Cotton.

Grade.	Staple I.	Staple II.	Staple III.
	d.	d.	d.
A	2·35	2·45	2·6
B	2·25	2·35	2·5
C	2·15	2·25	2·4
D	1·6	1·75	1·85
X	2·25	2·35	2·5
XX	2·15	2·25	2·4
XXX.. ..	1·5	1·6	1·75

Owing to the low yields which were obtained during the past season, it was necessary to re-finance a considerable number of cotton-growers who had been helped in the previous season when they were in necessitous circumstances following the disastrous drought period. Share farmers were also financed to fall and plant scrub areas, as were also settlers on newly opened areas in the Mundubbera district.

Altogether £16,500 was advanced to 560 cotton-growers out of the joint Commonwealth and State Governments Relief Loan Fund. At least £10,000 will be repaid of this amount from the first advances the growers will receive on their crops. Thirty-two thousand pounds was loaned last season, and, in spite of the low yields obtained, £20,000 was repaid. It was anticipated that a good proportion of the total outstanding loans would be repaid this season. Unfortunately, a large number of the share farmers were not able to plant after they had fallen their scrub, owing to inability to obtain burns. It has been necessary, therefore, to provide further finance for necessitous cases during the coming season.

Divisional Results.

The season has been the most unusual of any since this present phase of cotton-growing was started in 1919. The winter and spring rains were exceptionally heavy, especially in the Central district, where record falls for the past sixty years were experienced. Under such conditions the subsoil moisture, which was exhausted during the previous three years of droughty conditions, was renewed, and the new cotton crop got away to the best start in years. Unfortunately, showery conditions continued throughout the early summer, which not only promoted excessive weed growth, but seriously handicapped the obtaining of a good burn in the newly fallen scrub. In all probability at least 12,000 acres were either not planted, due to the lack of burns, or were abandoned after planting on account of inability of the growers to cope with the excessive growth of weeds and grass. Likewise a large area of intended ratoon was either abandoned or ploughed out late and resown to cotton in November.

Starting with the new year a dry period set in which continued throughout January. The complete change of conditions seriously affected the earlier-sown, heavily-laden crops in all districts, for under the wet conditions of the spring and early summer a shallow root system had been developed, and consequently the plants were not able to obtain their full requirements from the lower subsoil moisture. This resulted in a severe checking of plant growth, shedding of the top crop of squares and reduction in size of bolls, and but for the cool temperatures which fortunately existed through the dry period, serious damage would have resulted. Good rains relieved the situation at the beginning of February, which were followed by further nice storms later in the month. The soaking given to the soil then enabled the crop to develop in the dry period which existed throughout March in most districts. Commencing with the first of April a remarkable period of cloudy weather, accompanied by light showery conditions, set in, which continued, with short interruptions, through most of the harvesting period. Such conditions are entirely unusual for most of the cotton areas, and in the wetter districts the yields have been seriously reduced through the bolls failing to open sufficiently to prevent rotting during the wet periods.

The following table of rainfall recordings for representative centres in various sections of the main cotton belt is included, to allow of a better understanding of the nature of the moisture conditions under which the crop was grown:—

MONTHLY RAINFALL.

1st July, 1933, to 30th June, 1934.

(In 100ths of an Inch).

Station.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	Total.
Boonah	2·61	0·24	2·22	2·95	6·10	5·35	8·06	7·52	..	2·86	0·70	0·92	39·53
Kalbar	2·37	0·32	2·00	2·33	5·98	4·86	7·50	9·14	..	3·82	0·65	0·64	39·61
Laidley	2·56	0·59	1·15	1·52	6·80	5·84	4·21	8·15	0·10	5·31	0·95	0·72	37·90
Gatton	3·10	0·71	2·32	1·19	5·76	4·96	8·05	8·15	..	4·29	0·96	0·67	40·16
Lowood	2·54	0·92	1·21	1·61	6·84	6·95	4·90	9·27	0·63	6·40	1·19	0·82	43·28
Murgon	2·41	1·67	3·90	3·70	6·63	4·82	2·44	7·32	0·31	7·05	1·75	2·15	44·15
Gayndah	3·71	1·46	3·45	4·87	6·38	2·87	0·52	8·58	0·65	2·05	2·41	2·54	39·49
Eidsvold	4·80	1·51	4·06	3·58	4·18	2·56	3·84	8·63	0·89	2·30	2·07	1·64	40·06
Camboon	4·69	2·34	4·09	5·39	5·58	3·62	0·46	6·05	..	2·64	3·24	3·51	41·61
Many Peaks	6·50	1·22	2·45	6·83	7·73	5·10	1·45	16·23	0·22	2·78	1·32	3·03	54·86
Mount Larcom	13·17	0·92	1·21	5·79	7·85	4·32	0·93	20·18	0·40	2·02	0·73	2·01	59·53
Rockhampton	19·52	0·88	1·01	4·07	5·14	4·00	1·77	16·27	0·23	3·00	0·82	2·29	59·00
Westwood	9·26	0·96	3·53	3·60	5·25	1·99	0·74	9·75	0·22	2·34	0·66	1·35	39·65
Wowan	10·25	1·15	2·89	3·73	5·45	3·27	0·28	8·96	0·18	2·88	1·44	3·66	44·14
Biloela	6·21	1·43	2·02	3·52	4·58	3·64	0·70	6·80	..	3·11	1·18	3·39	36·58

STANDARD OF CULTIVATION.

The standard of cultivation taken as a whole has been remarkably good considering the amount of showery weather that was experienced during the first half of the season in nearly all districts. The growers realised that with such conditions it was necessary to keep the crops well cleaned right from the start, otherwise the weed growth would be such as to make later cultivation costs prohibitive, and crops would even have to be abandoned. The latter actually occurred to some extent in all districts, especially on the soils which had been under continuous cotton cultivation for many years. The extra cultivating put into the crops in the early stages paid handsomely, and undoubtedly in all districts the general condition of the cotton crops at the end of December was the most promising of any for many years. Had only moderate rainfall been experienced early in January, most remarkable yields would have been common through all the main districts. Undoubtedly it pays to keep the cotton crops well cultivated during the early growth, and it is to be hoped that the excellent demonstrations of the value of the same which were obtained in all districts this season will have a permanent effect.

CROP YIELDS.

The yield this past season to the 30th June has been 20,220,663 lb. of seed cotton. This was produced by 3,098 growers who at mid-season reported 48,883 acres capable of producing yields worth picking. This surpasses the previous record crop of 18,182,642 lb. produced in the 1924-25 season. Considerable crop still remains to be harvested, and it is likely that the total will reach at least 25,000,000 lb. The final yield for the past season was 17,723,257 lb. seed cotton, produced by 3,991 growers reporting 80,743 acres as having crop possibilities at mid-season.

QUALITY OF THE CROP.

As would be expected with such adverse climatic conditions ruling from mid-season onwards, the quality of much of the crop has been adversely affected. The crops were just opening well when the first storms of the prolonged wet period were experienced. Ordinarily little, if any, damage would have been caused, but under the unusual rainfall the harvesting was interrupted at such frequent intervals that much of the crop was left unpicked entirely too long. The average grade has been considerably lower, therefore, than that of other seasons when dry, bright sunshiny weather usually ruled throughout most of the harvesting period. With the showery conditions, discoloration of the cotton by "spots" caused by bacterial diseases has also been more prevalent, and much sound-bodied lint has had to be kept out of the standard grades for mature cotton.

COTTON RESEARCH STATION.

The general results being obtained this season at the Cotton Research Station located in the

Callide Valley will be the best of any experienced since the season of 1927-28. Yields high enough to make the results reliable will be obtained from most experiments, and much valuable information will be secured from the investigations in hand. It is unfortunate that the plants in many of the experiments were so heavily laden during January when no rain occurred, for marked checking of growth resulted, accompanied by considerable shedding of top crop. In portions of the station where a hailstorm cut back the plants in their early stage of growth, only a light crop was carried during the January dry spell. The plants in these sections came through the adverse conditions much better than did those in the portions which were not hail damaged, and consequently produced heavier total yields. This is the first season, however, that the early October plantings at the station have not outyielded later plantings. Unfortunately, the experiments have not been finalised owing to the late harvesting season, due to the first killing frosts not occurring until mid-June, hence it will not be possible to report at present on any of the results which will be obtained. One outstanding feature of the experiments this season, however, has been the shorter height of plant over the whole of the station. This has likewise been true of most of the commercial plantings in most of the main cotton districts. On old cultivations of the richer alluvial soils, where for several seasons rank growth has nearly always resulted, excellent types of heavily-laden plants have been produced, even in late plantings. Nitrate determinations made at the Research Station indicated that there was a very limited nitrate content of the upper 18 inches of soil through most of the season, due to the frequent rains leaching the nitrates to the lower levels. An ideal type of plant was thus developed in the earlier part of the season which really required a greater amount of nitrates at times, than were present in the zone of the lateral roots, in new cultivations or following grass land. It was especially unfortunate, therefore, that a further checking of plant growth occurred during the January "dry up," for without it phenomenal crops would have been possible in many districts.

Pure Seed Operations.

Marked progress has been made this season in increasing the supplies of improved seed of several varieties. It will be possible during the coming crop to supply all requirements of the Durango variety with seed of an excellent stock, and in addition, to plant several hundred acres of a more recently improved stock.

Likewise, two improved strains of the ordinary Acala variety have been greatly increased, and several hundred acres of them will be planted next season.

Excellent results have been obtained with the Lone Star variety in most of the districts in which it was tried this season, and it now appears that this is going to be a very suitable variety for certain of the harder soil types over a wide range of country. Sufficient seed of it has been produced this season to plant around 25,000 acres, and it is anticipated that this will be placed with no difficulty. The Mundubbera district, which has had satisfactory results with this variety for the past four seasons, will be planted entirely to Lone Star, and a pure seed centre established there. The fibre of this variety has been of a generally good character this season, and as it is of the heavy-bodied medium staple type now desired by the spinners, very satisfactory progress has been made in regard to the future production of cotton of this class.

Substantial progress has also been made in increasing the stocks of seed of the Indio Acala and Mebane varieties. The general results obtained this season from these cottons have not been so satisfactory, generally speaking, as those realized with Lone Star. The Indio Acala has produced excellent yields in several instances, but the character of the lint obtained indicated very clearly that considerable improvement in strength is required. The Mebane variety has shown serious deficiencies regarding boll opening and susceptibility to insect attack, particularly in the wetter districts, and a more open type of plant is required in it.

In order to increase the quantity of seed of the big boll high lint percented medium staple types of cotton for distribution this season, 4 long tons of seed of Cliett Superior, 2 tons of Lone Star, 800 lb. of Ferguson 406, and 180 lb. of Improved New Boykin were imported from the State of Texas, U.S.A., direct from the breeders of these varieties. Unfortunately, the abnormal climatic conditions have been so much wetter than those usually ruling in the districts where these varieties are grown, that only moderate results have been obtained with all of them. Cliett Superior, in some of the plots planted in the drier areas, gave the most promising results, and a thorough test of the possibilities of this variety will be made in the coming season.

Advisory Work.

The changing over to the big boll medium staple high lint percent varieties has increased the advisory work of the Field Staff most appreciably, seed sufficient to plant several thousand acres being personally allotted. A large number of varietal and thinning tests, including several trials of machine thinning for the Cotton Board, were also conducted. Comprehensive exhibits embodying instructional features connected with varietal and cultural factors were also prepared for several district Shows in the main cotton areas, as a part of the advisory activities. Four members of the staff were part-time engaged in crop inspections connected with the loans issued by the Department of Labour and Industry.

Grading.

The Government graders have again graded the seed cotton and resultant lint. Likewise, a large number of lint samples representative of the various grades and staple lengths were supplied to inquirers at the request of the Cotton Board. Eight complete sets of lint standards, each composed of nineteen grades, were also prepared, each grade represented by a box containing twelve samples covering the range allowable in a grade. These were used in grading the bales of lint, and as reference types by the spinners in checking on the quality of their purchases.

INSECT PESTS AND DISEASES.

The season, as a whole, has been characterised by the remarkably light amount of damage caused by Corn-ear worm (*Heliothis obsoleta*) in all districts except the southern, where unusually heavy losses were experienced. In the other districts, however, all plantings, even as late as mid-December, escaped with only light damage except in a few isolated instances.

The rough boll worm (*Earias huegeli* Rozenk) was present in appreciable numbers in all districts, particularly in the south, where excessive loss of terminals and young bolls resulted during the first half of the season from attacks by this pest, which has caused serious economic loss during the last three seasons.

The pink boll worm (*Platyedra* species?) has again occurred in large numbers in the Central District and the Upper Burnett. It was also reported at Gayndah for the first time. Heavy growths of grass and weeds have been obtained during the season in the old scrub plantings, and given dry conditions in the spring, excellent burns should be obtained in all the old "stand-over" plantings. A good clean-up of the breeding centres should thus be obtainable, and the effect on the pink boll worm population during the coming season will be closely watched, particularly in the Callide Valley, where such an increase in numbers has occurred during the last three seasons.

The cutworm (*Euxoa radians* Guen.) did comparatively little damage this season.

ACKNOWLEDGMENTS.

The Principal of the Queensland Agricultural High School and College has again kindly made land and labour available for conducting breeding plots of several varieties of cotton being developed for the Southern district.

The Agricultural Chemist and various members of his staff have carried out a large number of determinations of various natures in soils and grasses. The information obtained in the soil moisture and nitrate studies has been most helpful in interpreting the results realised in the cotton investigations of this season.

The Chief Entomologist and members of his staff have again given valuable assistance in connection with entomological problems and in the inspection of a large number of quarantine plots of the 6½ tons of seed imported this season. Fortunately, no serious pests or diseases made it necessary to destroy any of these plots.

I am also greatly indebted to the Director of Agriculture for making available the services of several of his officers in the Northern division to test the most likely varieties of cotton in the tobacco areas as a possible rotational crop, and in some of the drier sections of the North where cotton-growing may be a profitable enterprise.

W. G. WELLS,
Director of Cotton Culture.

REPORT OF THE DIRECTOR OF FRUIT CULTURE.

Weather conditions during the early part of the year gave great promise of an exceptionally good season for the fruit industry. Bountiful spring rains resulted in splendid settings of fruit in almost every district. Unfortunately, wet weather accompanied by rather mild conditions continued right throughout the summer and autumn months. Very few really hot days were experienced, with the results that much fruit was lost through the development of soft rots, maturity was delayed, and the storage life of the fruit marketed was very limited. The last factor particularly was responsible in many instances for slow sales, and at times the market was so overloaded with fruit that it had necessarily to be sold at comparatively low prices.

The area devoted to the production of fruit throughout the State continues to increase. A further 6,000 acres of bananas have been planted; the export of apples amounted to 45,000 bushels; pineapple production was over 20 per cent. higher than last year; and the citrus crop will also be a very big one.

With regard to the export of apples, the Acting Agent-General in London (Mr. L. H. Pike) has been very thorough in his reports of the various consignments going forward from Queensland, and has submitted suggestions for improvement which will be invaluable as a guide for future years.

This State has only recently entered into the export trade in apples, and it is very pleasing to note that, though initial errors have been made, comparison with other States which are considerably bigger exporters leaves a balance in our favour. Though the United Kingdom market for apples has not been a very bright one, local growers of export fruit are always assured of payable prices. That this should be so is solely due to this State's sound organised marketing legislation, under which all apple growers voluntarily provide a fund at the rate of one penny per bushel of fruit produced to cover any loss on export.

The same organised marketing laws have saved pineapple growers from serious difficulty due to greatly increased production. The Fruit Industry Sugar Concession Committee granted a sum of £20,000 to assist the export trade in canned pineapples, but this amount was not nearly sufficient to cover the loss on the quantity it was necessary to export, and the growers through their organisation, in effect, subsidised this amount by means of a levy on production, and thereby assured for themselves a fixed price for factory pineapples.

During the year the Canadian authorities were approached with the object of obtaining a greater preference for Queensland canned pineapples, but without result. Greater success, however, attended negotiations with the New Zealand Government with regard to the embargo on the importation of fresh fruit from Australia, in so far that pineapples from Queensland were permitted entry.

The citrus industry still faces a big problem in the disposal of a surplus over and above that required for local consumption. A Citrus Investigation Committee representative of all producing States has been appointed to inquire into the position. At the first meeting during the year it was found that the information in the hands of the States was insufficient to enter upon a sufficiently intimate discussion to make recommendations, and a census of the industry is now being taken. In the meantime the Commonwealth Government guaranteed to exporters of oranges to countries other than New Zealand a reimbursement of their out-of-pocket marketing expenses to the extent of 13s. per 1½ bushel case. As a result of the guarantee, 113,000 bushels of oranges were exported to the United Kingdom, compared with an average of 10,000 cases during the preceding five years.

THE GRANITE BELT.

According to the report of the Instructor in Fruit Culture at Stanthorpe (Mr. H. St. J. Pratt), the 1933-1934 fruit season promised well in October and November, but, unfortunately, on account of unfavourable weather conditions, the original expectations had to be considerably modified.

The abnormal weather conditions and absence of sun were responsible for making the season considerably later than usual. The early stone fruit was practically three weeks later than usual, and the apples at least ten days. With the stone fruit this lateness of the season was particularly undesirable, as it reduced its length considerably. Instead of growers starting to pick early peaches and Japanese plums in quantity on or about the 1st December, the fruit had not reached the same standard of maturity until three weeks later, leaving a bare week before Christmas to market the early varieties. The prices realised were poor, as the fruit market in the Metropolis just after Christmas is always dull, due to the large exodus of people to holiday resorts. In addition the cold inclement weather adversely affected the demand for fruit—it was not fruit-eating weather. Owing to the factories not working during the Christmas holidays, and the small quantity of fruit required by the manufacturers this season, many growers were unable to dispose of all their produce, as there was no profitable outlet for it.

The abnormal climatic conditions favoured the spread of Brown Rot in all the stone fruits. The prevalence of this disease had a very depressing effect on values, and practically eliminated the Northern market, as the disease developed in transit. This season Brown Rot was responsible for much damage, as it was also in the other States of Australia, and greater precautions will have to be taken in future seasons to cope with it.

The export of apples this season amounted to 45,000 cases, an increase of about 12,000 cases over last season. The Stanthorpe growers now generally realise that export is a necessity. The diverting of 45,000 cases from the local markets raised the prices considerably, and without the export trade the prices for apples must have been very poor. Further reorganisation of the export trade is necessary before next season. This year we have been fortunate in receiving candid criticism from the Agent-General and the agents handling the fruit, together with suggestions and recommendations, so that steps can be taken in future to prevent a repetition of previous errors and to further the good name Stanthorpe is building up.

The grape growers, like those of stone fruits, suffered from the wet cold weather, with the result that Black Spot was almost uncontrollable. The experience of this season as regards this disease will probably check the further planting of or working over to some of the later varieties of grapes, such as Waltham Cross and Purple Cornichon, so that the Muscat variety will become still more the chief variety grown in the district.

Accordingly, the growers will have to seriously consider the export trade. Unfortunately, the growers this season failed to take advantage of the opportunity of exporting some of the Muscats to Canada, where they would have realised good prices. The experience gained would also have been of great value for the future.

That Muscats will carry satisfactorily if proper care is given in picking and packing was again demonstrated by Messrs. J. Luke and N. Collins, of Glen Aplin, who placed several cases in cool store in Brisbane at the time the consignment would have left, and which, taken out later than they would have arrived in Canada, opened up in perfect condition.

The vegetable growers had a particularly lean time. Prices were not all that could be desired, and the continued dull weather and absence of sun was responsible for a considerable amount of Irish Blight in tomatoes. A very severe frost on the 30th April, when 13 degrees of frost was registered, completely destroyed the late tomato and bean crops, which was a very serious loss to the whole district.

PESTS AND DISEASES.

The fruit fly proved a very serious menace at times during the season, and its prevalence resulted in considerable loss to the district. Its incidence, however, was not general all over the district, and whereas some growers lost heavily, with others their loss was negligible. The spraying of apples with White Oil and Black Leaf 40 every ten days has given very encouraging results. This spray serves a three-fold purpose—(1) As a repellant to fruit fly; (2) as a codling moth spray; and (3) it keeps red spider in check.

To provide greater control for fruit fly it is becoming increasingly apparent

(1) That growers should be made to suppress all weed growth round the trees to facilitate proper and adequate picking up of stung fruit;

(2) That the non-commercial orchards scattered throughout the district, and which are run as a side-line, must be destroyed; and

(3) That the back-yard orchards adjacent to Stanthorpe in both Queensland and New South Wales must be either adequately cared for or destroyed.

Diseases other than those mentioned have not caused great anxiety, and have been under control.

The plantings for the coming season in all classes of fruit will be small.

Considerable work in connection with the Apple Stock problem has been done by the Department during the year with encouraging results, but it will necessarily take several years before any definite recommendation can be made in this direction.

In the report of the Packing Instructor on the export of apples from Stanthorpe it is stated—"A most pleasing factor was the desire of the growers to pack only the best quality fruit. The manner in which diseased and unsuitable fruit was rejected without official supervision was, indeed, creditable. The total rejections for disease and general unsuitability amounted to only 200 cases."

CITRUS FRUITS.

Citrus districts on the North Coast generally experienced a favourable spring. Good crops set, and up to the end of December gave excellent results. Since then practically continuous rains and a cool summer have greatly reduced crop prospects. Cold damp soils have impaired tree vigour in many instances, resulting in smaller fruit, whilst the continual wet weather has had the effect of causing the fruit to be tender and consequently of poor keeping quality. Fungus diseases have been prevalent, particularly Brown and Black Spot, Pinking Fungus, and Moulds. With the exception of fruit fly, which was particularly active during April and May, insect pests and scales have been a little less severe. Orchards favourably situated receiving systematic care and attention, particularly with regard to cultivation and fertilising, have naturally been better able to withstand the extreme conditions and are now showing improvement. The number of orchards in the coastal areas is still being reduced gradually on account of unsuitable environment.

In the Gayndah district the weather conditions were similar to those experienced in the coastal areas, but being inland in a drier belt the rains were less severe on the tree vigour and the crops. Although affecting fruits to a minor degree, rigid attention to culling enabled growers to supply the usual high quality associated with fruit from that district. A very fine crop of summer lemons was marketed during February and March. Steady progress is being maintained in the district, and, as usual, new plantings have been carefully made on sound commercial lines.

Originally citrus orchards were planted in Queensland with seedling trees and poor varieties and in all kinds of situations on the coast without thought as to whether the conditions were suited to the profitable life of the trees. It is now being gradually realised by growers that it is only the more favourably situated sites which can be relied upon to compete economically for any length of time. The result is that the citrus industry is now being established under more balanced conditions in which coastal influences play little or no part and irrigation is the chief means of supplying the trees' moisture requirements. There is every reason to believe that the future citrus industry of this State will be centred in such districts as the Burnett, where there is plenty of suitable land and an unfailing supply of water.

The market for citrus has not been an active one, and prices have been low in consequence. Whereas weather conditions adversely affected the keeping quality of the fruit, growers have not been as careful as usual with their marketing. A frequent cause of complaint was the damage occasioned through improper artificial ripening methods.

The question of whether or not artificial ripening should be permitted has been much debated during the season, districts in which fruit matures early favouring artificial colouring and late ripening districts opposing it. Regarding the position from the point of view of a State-wide industry, the facts must not be overlooked—firstly, that there is in operation a maturity standard which is universal in the Commonwealth; secondly, that all States adopt artificial colouring methods; and thirdly, that Queensland possesses a natural advantage in that local citrus matures earlier than elsewhere. Provided then that our citrus possesses sufficient sugar to pass the maturity test, even whilst quite green in colour, there is every reason to favour the practice of subjecting it to reasonable mechanical means to aid the development of the natural colour if it will help growers to preserve the advantage of earliness in this State, and thereby profit by any better prices ruling on an early market.

It has been stated in some districts that immature oranges have been artificially coloured, and have been allowed to be marketed, and that this is the cause of the poor demand. Such is not true, as all doubtful lines are subjected to analytical tests to ascertain the sugar contents before they are permitted to be sold. It should be realised that the early market on which local growers reaped a harvest a few years ago does not now exist to the same extent from this aspect. In certain districts in New South Wales the late Valencia crop is now allowed to hang sufficiently long to permit it to be marketed well into what local growers are in the habit of regarding as their early market. This long hanging fruit is naturally very sweet, and in comparison the buying public are prone to consider Queensland early citrus sour and unpalatable, even though it complies with the maturity standard. The natural consequence is a preference for New South Wales oranges, whilst the demand for early local citrus is slow.

CITRUS BUDWOOD SCHEME.

The scheme introduced last season for improvement in the quality of citrus trees sold in this State by the selection of special budwood and also seed for raising stocks is working very efficiently. Initial difficulties associated with a scheme of this nature were met and overcome, and credit is due to the field officers who selected the budwood in that general satisfaction was expressed by nurserymen at the condition in which the buds were received and the successful results which they obtained from the budding. Altogether more than 25,000 buds were specially selected and supplied for the autumn budding, and approximately 25,000 more will be required for the spring. The selection of special wild lemon and seedling sweet orange seeds for stocks also was carried out successfully, and 32 lb. of lemon and 60 lb. of orange seed were distributed.

PINEAPPLES.

The pineapple crop for the year was an exceptionally big one, and, according to increased plantings, there is every prospect of its being very much greater during the ensuing season. As in the case of other orchards, however, continuous rains and cool weather adversely affected plantations. Many are showing a wilted appearance, whilst Brown Speck disease, which is usually associated with the winter crop, has been prevalent, causing considerable losses and increasing the supervision necessary at the factories.

On the Blackall Range and Buderim Mountain there is a tendency on the part of the growers to replant their citrus orchards with pineapples, and where the maximum amount of attention is paid to reconditioning the land and providing adequate shelter from heavy winds is available good results can be anticipated. In some districts greater attention to cultivation would greatly improve the yield per acre. Vigorous growth which must follow through cultivation would mean larger and better pines, and consequently better returns.

BANANAS.

There was a very big increase in the area planted to bananas during the year. Permits were issued for the planting of approximately 4,000,000 suckers, representing an increase of about 10,000 acres. Due, however, to the continuous rain preventing timely burning of the fallen timber and to other causes, it is estimated that only about 6,000 acres were actually planted. This brings the area for the State up to the vicinity of 20,000 acres, likely to yield up to 1,000,000 cases per annum. This was Queensland's highest production attained in the year 1928, since when the industry declined to below half a million cases owing mainly to the ravages of diseases. With this big production in sight, and the fact that New South Wales has entered into competition with local growers, and has now an equal area planted with bananas, the prospects before the industry during the next year or two are not over-bright. The natural result, of course, will be the elimination of those areas unfavourably situated. The banana industry is different from other big fruit industries, in so far that an export market awaits an over-supply of such fruits as pineapples, citrus, apples, &c., whilst bananas must be consumed locally as fresh fruit. With this in view, everything possible is being done to encourage the consumption of bananas. New ripening rooms are to be opened in Melbourne by the Committee of Direction of Fruit Marketing to ensure that bananas correctly ripened by the latest scientific means are available to the public. It is interesting to record here that the consumption of bananas per head of population in the United States of America is 25 lb., whilst in Australia it is only 14 lb.

The South Coast is again the chief centre of production, chiefly the Currumbin and Tallebudgera valleys. Six or eight years ago these two districts produced enormous quantities of bananas, but when Bunchy Top took toll every plant had to be destroyed, and the North Coast became the source of supply. Beetle Borer and Thrips, however, played havoc in many areas, and were responsible for the destruction of thousands of acres, and with Bunchy Top not entirely eliminated but under control the main production has again shifted to the South Coast.

Bunchy Top, which was confined for a long time to plantations south of the Maroochy River, has at last made its appearance in some plantations further northwards, and has lately been found in a few plants in the Mary Valley. Careful and constant supervision of affected areas is being carried out, and there is every prospect of keeping the new outbreak confined to a few plantations.

The Banana Industry Protection Board continues to function for the betterment of the industry, and the field officers of the Board are keenly interested in the welfare of their individual districts.

The previous system of issuance of permits by the Board's secretary to plant new areas is to be abolished during the coming planting season, and in most instances the banana agents will issue the necessary permission in their respective districts, and so avoid delays in dealing with applications from growers.

Considerable dissatisfaction existed at growers' meetings in many districts during the year owing to the great quantity of fruit which was being degraded in Melbourne as being below the size stamped on the cases. Inquiry in the South, however, elicited the information that the grading regulations were not being harshly enforced. It is possible that much of the trouble occurred through growers packing too close to the minimum size allowed for each grade, and not allowing for natural shrinkage of the fruit in transit.

The Industry in the North.

Within the district lying between Townsville and Cooktown the following fruits are grown:—Citrus, 553 acres; bananas, 565 acres; papaws, 50 acres; pineapples, 260 acres; temperate fruits, 15 acres; coconuts, 60 acres; passion fruit, 20 acres; small crops, 100 acres; granadillas, 20 acres; grapes, 15 acres; mangoes, 100 acres; as well as small areas of Queensland nuts, custard apples, grapes, and strawberries. Scattered over such a wide area it is but natural to expect that certain portions of the territory are more fertile and more productive than others, and average better crops. Citrus may be averaged at about 3½ bushels per tree, and returns are satisfactory. Bananas yielded an increased return during the last twelve months, so much so that the estimated production per acre amounted to 150 cases as compared with 80 to 100 cases the previous year. The average increase can be attributed solely to an increased area of first-year plantations. It is interesting to record that local and north-west trade is responsible for the expansion in area, and supplies from Southern markets are being less looked for.

Papaws and pineapples yielded quite satisfactory returns. Passion fruit, though affected somewhat by excessive rains, was sufficiently remunerative to warrant increased plantings. Granadillas thrived exceedingly well, and commanded a ready sale. The mango crop was ruined by heavy rains which fell during the blossoming period. Temperate fruits and grapes were also affected by untimely rains, but what fruit was harvested met a ready sale. There is ample room for extension in the growing of these fruits in the Tableland areas of North Queensland, and the local markets can absorb a much greater quantity than is at present produced. Strawberries, though grown only in a small way on the Tableland and on the coast, yielded good crops.

Bowen District.

In the Bowen-Proserpine-Mackay area heavy and continuous rains also were experienced during the year, and were responsible for considerable loss to Bowen tomato growers. Pineapple producers, however, benefited by heavier crops and bigger fruit. Exports shown an increase over the previous year, and as a result a bigger area will be planted this season.

Good bananas are being produced in these districts, mostly for local markets. In the district from Bowen north to Ayr and Alligator Creek irrigation is being employed in dry seasons for the production of this fruit. Other crops grown are principally mangoes, citrus, and small crops.

Rockhampton District.

In the Rockhampton district heavy and unusual rains were also experienced, but were rather beneficial than otherwise. The area under citrus is not increasing, though a number of new orchards have been planted on sound commercial lines to take the place of others destroyed as being unsuitable for various reasons.

The quality of bananas produced showed a marked improvement, due to improved cultural methods and the destruction of old areas which were responsible for producing poor fruit Pineapples maintain a reasonably good quality, and diseases prevalent in the bigger pineapple-producing districts are neglible. The cultivation of papaws, particularly in the Yarwun district, has commanded considerable attention, and the fruit is noted on Southern markets for its very fine quality. Comparatively large areas of tomatoes have been planted, but the unusual rain adversely affected this crop.

QUEENSLAND NUTS.

The area under Queensland nuts is increasing very rapidly, and though no definite figures are available it is probable that more than 300 acres have now been planted up in this State. There appears to be a very profitable future before this nut. Quite a number of enquiries are being made from America and England for quantities which cannot yet be supplied. In addition, the local market can absorb considerable quantities both for table and manufacturing purposes.

AVOCADO PEARS.

Here is another fruit which promises to be a profitable source of revenue. The right kinds are hardy under Queensland conditions, and bear well. Numerous kinds have been tested out, chiefly by the Acclimatisation Society, and a number of outstanding varieties selected and worked up. Fruit at the present time is netting fortunate growers 12s. per half bushel. Each year more orchards are being planted.

LEGISLATION.

During the year regulations were gazetted to provide for greater control of banana diseases and fruit fly. It was necessary, owing to the outbreak of Bunchy Top north of the Maroochy River, to extend the boundaries of the "Buffer Area." An outbreak of Brown Spot of Emperor Mandarins in the Caboolture district also necessitated the quarantining of a small area in that locality.

EXPERIMENTS.

Fertilizing experiments in the Tambourine Mountain and Blackall Range districts for the purpose of improving the productivity of citrus trees are being continued. Experiments have also been commenced to ascertain the relative merits of sulphate and muriate of potash applied to pineapples. Analyses are being made of citrus fruits and grapes by the Agricultural Chemist for the purpose of determining maturity standards.

STAFF.

Several transfers have taken place consequent on a general reorganisation of staff to provide for greater efficiency. The beneficial results of the efforts of the field staff are reflected yearly in the improvement in the quality of fruit produced, indicating gradual change by producers from rule of thumb to more scientific methods of working.

A return compiled by the Senior Inspector, showing the imports and exports of fruit and vegetables for the year, is attached.

H. BARNES, Director of Fruit Culture.

—	Fruit.											Seeds and Plants.	
—	Bananas.	Passions.	Citrus.	Pines.	Tomatoes.	Strawberries.	Grapes.	Mangoes	Egg Fruit.	Various Fruits.	Melons.	Bird-seed.	Plants.
	Cases.	Cases.	Cases.	Cases.	Cases.	Cases.	Cases.	Cases.	Cases.	Cases.	Bags.	Bags.	Packages.
Brisbane	6,182	..	422	31,203	4,964	42	30	..	..	1,697	..	28,755	148
Clapham	354,982	..	14,020	311,172	298,790	6,693	..	2,684	767	64,066	778	865	366
Wallangarra	4,373	..	..	3,781	37,609	..	..	..	..	41,062	..	..	61
Rockhampton	..	..	82	1,340	981	..	..	1	..	2	..	..	7
Bowen	239	..	..	16,290	141,742	..	..	2,526	767	4	..	..	..
Townsville	..	..	..	3,802	37	..	..	157	..	2,410	..	..	..
Innisfail	..	..	..	..	..	..	..	..	..	..	..	..	..
Cairns	..	..	225	..	..	..	..	..	..	..	..	..	8
Totals	365,537	..	14,442	346,156	341,363	6,735	30	2,684	767	106,823	778	29,620	575

NOTE.—Totals made up Brisbane, Clapham, and Wallangarra. All other Ports included in these.

—	Produce.										Vegetables.		
—	Pumpkins.	Potatoes.	Maize.	Onions.	Peanuts.	Arrowroot.	Ginger.	Tobacco.	Coconuts.	Cane.	Cucumbers.	Chillies.	Vegetables.
	Bags.	Bags.	Bags.	Bags.	Bags.	Cases.	Bags.	Packages.	Bags.	Packages.	Cases.	Packages.	Packages.
Brisbane	50,510	2,249	49,821	733	23,838	7,141	2	4,823	..	..	9,655	..	4,736
Clapham	27,882	1,692	197,381	2,113	266	184	291	..	..	51	27,046	1,183	47,622
Wallangarra	13,870	1,022	..	..	28	..	..	..	..	..	..	..	11,824
Rockhampton	..	..	..	..	890	..	..	..	..	..	..	..	..
Bowen	14,947	43	..	..	..	..	..	..	..	..	7,747	1,102	128
Townsville	889	..	..	21	..	..	..	..	..	..	..	..	..
Innisfail	..	..	..	..	..	..	..	..	..	..	..	..	..
Cairns	..	..	117,111	..	2,614	..	..	4,671	..	..	..	..	..
Totals	92,262	4,963	247,202	2,846	24,132	7,325	293	4,823	..	51	36,701	1,183	64,182

INTERSTATE IMPORTS, YEAR ENDING 30TH JUNE, 1934.

—	Fruit.	Potatoes.	Vegetables	Plants.	Onions.	Nuts.	Garlic.	Swedes.	Seeds.	Grapes.
	Cases.	Bags.	Packages.	Packages.	Bags.	Packages.	Bags.	Bags.	Packages.	Cases.
Brisbane	446,923	138,126	3,003	157	49,283	..	..	6,597	..	..
Clapham	218,374	29,968	561	263	407	..	..	..	..	1,129
Wallangarra	84,169	38,208	19,371	951	..	..	..	..	..	1,366
Rockhampton	678	15,510	1,069	73	7,655	..	..	..	..	24
Bowen	..	3,521	31	2	1,112	..	..	..	..	..
Townsville..	25,960	29,073	979	43	13,615	..	..	..	..	..
Innisfail	..	..	..	..	..	..	..	..	..	..
Cairns	22,246	25,850	502	29	8,897	..	..	402	..	117
Totals ..	749,466	206,302	22,935	1,371	49,690	..	..	6,597	..	2,493

IMPORTS—QUARANTINE ACT.

Timber.	Timber.	Timber.	Timber.	Umbrella Sticks.	Rattans.
Logs.	Super ft.	Bundles.	Pieces.	Bundles.	Bundles.
450	3,371,041	96	712	2	1,866
Staves.	Shingles.	Woodwool.	Skewers.	Willows.	Split Cane.
Bundles.	Bundles.	Bales.	Bundles.	Bundles.	Bundles.
568,474	200	198	3,700	176	60
Bamboo.	Seagrass.	Fibre.	General Goods.	Parcel Post.	—
33 Bundles.	17 Bundles.	1 Package.	30,965 Packages.	439 Packages.	

EXPORTS—COMMERCE ACT.

Fruit.	Plants.	Vegetables.
43,172 Cases.	5 Packages.	322 Cases.

NOTE.—Totals made up Brisbane, Clapham, and Wallangarra. All other Ports included in these.

A. PERSON, Senior Plants Inspector.

ANNUAL REPORT OF SUPERVISOR OF DAIRYING.

The season was marked by favourable weather conditions over the greater part of the State in which dairy farming is carried on. Throughout the spring, summer, and autumn the greater portion of the dairying areas benefited by a liberal rainfall, so that the season has been, generally, the longest and most productive since the industry was established in the State.

As a consequence of the favourable weather conditions, and the wise provision by many dairymen of a supply of winter feed, the average winter output has exceeded that of previous years. It is pleasing to note that many dairy farmers are realising the wisdom of providing feed for their herds throughout the entire season. Apart from being an insurance against a shortage of winter pasturage or failure of winter crop, maize and sorghums provide a cheap winter feed if preserved in the form of silage.

The heavy falls of rain experienced in some localities prevented the regular delivery of cream to the factory, and the quality of the product declined accordingly.

The generally favourable seasonal conditions are reflected in the record output of the dairy factories.

BUTTER PRODUCTION.

The quantity of butter manufactured amounted to 123,918,257 lb., as against 100,028,578 lb. for the previous year, which was a record year in butter production. The increase in production, while due primarily to the favourable weather conditions, had as contributing factors the settlement and development of areas of Crown lands in the Upper Burnett and the Dawson Valley, and also the development of fertile areas reclaimed from prickly-pear infestation. It is also noted that a number of landowners, consequent upon the low price ruling for meat previously engaged in pastoral pursuits, have devoted a section of their holdings to dairying. It is anticipated that the further development of an export trade in chilled meat will result in a number relinquishing dairying for beef production solely, for which their properties are obviously better adapted.

The following tables show the production of butter during the period:—

BUTTER PRODUCTION, 1933-34.

1933.	lb.
July	4,549,874
August	4,933,897
September	6,612,944
October	10,020,646
November	12,460,603
December	15,611,343
1934.	
January	16,658,557
February	13,362,960
March	13,711,656
April	10,115,484
May	8,843,507
June	7,036,786
Total	123,918,257

It is interesting to note the absence of the usual marked variation in output, due to seasonal conditions.

MARKETS.

This State exported approximately 76 per cent. of its butter output to the British market, which absorbs about 85 per cent. of the whole of the world's butter exports. This in 1933 amounted to 440,000 tons, an increase of 90,000 tons.

The price ruling on the London market determines world parity, and during the period the price received for the State's butter was the lowest for forty years. Throughout the year, the market value was depressed and the low prices ruling were reflected in the decreased price paid to cream suppliers.

Figures supplied by the Dairy Export Board indicate that Denmark led as an exporter of butter to Great Britain with, during 1933, 131,740 tons, an increase of 6,042 tons. New Zealand came next with 118,604 tons, an increase of 15,177 tons. Australia was third with 97,447 tons, an increase of 17,466 tons. Russia contributed 18,324 tons, and the Argentine 13,581 tons. Other sources including Finland, Esthonia, the Netherlands, and the Irish Free State supplied 63,557 tons.

On the oversea markets this State's butter is thus competing with the product of the leading dairy countries of the world, and in order to secure remunerative prices to our producers it is essential that only a high grade product be exported.

Overseas cheese exports totalled 7,425,067 lb.; interstate consignments amounted to 3,065,510 lb.; while the domestic trade absorbed 2,408,643 lb. The balance remained in cold storage.

GRADING OF BUTTER.

The work of the grading officers is of paramount importance to the industry. Through the full co-operation of Federal and State graders, a unique opportunity is afforded of forming a reliable opinion and assessing the quality of the product. Systematic grading allows of a comparison being made between the butter manufactured during the entire season by the whole of the factories in operation. Followed up by investigatory work on the part of the dairy technologists, this work is of major importance in the solution of problems which confront those associated with the industry in all its branches.

An analysis of the records of the grading officers indicates that while a number of factories have shown a considerable improvement, which was sustained throughout the greater portion of the period, there were some factories from which returns show that the quality of their output varies periodically. Other factories, again, have failed to attain a high standard of quality, which can be achieved only with the co-operation of both the producing and manufacturing sections of the industry. A matter demanding the serious attention of all associated with the industry is the production of a uniform high grade butter, and this is the key to success in oversea marketing.

Investigation and research have definitely indicated that a high grade sweet butter possessing desired keeping quality, can be produced from clean sweet cream. As butter of this character meets the demands of overseas consumers, frequent deliveries of cream and careful systematic grading should be insisted upon by company managements.

While defects associated with the manufacturing section are not frequent, during the peak period the product of some factories gave evidence of departure from the recognised principles of modern butter-making, due to restricted capacity occasioned by the increased quantities of cream received during the peak period.

Provision should be made for the treatment of the maximum supply of cream to each manufacturing unit, if defects arising from faulty manufacture are to be obviated.

Moisture Content.

The output of various factories disclosed that the moisture content of butter produced approximated the legal standard more closely than in previous years.

A small percentage of samples taken from moisture determination showed an excess, and were reconditioned under supervision so as to comply with regulations under "*The Dairy Produce Acts*, 1920-1932."

Quality.

Climatic conditions at certain times of the year were responsible for difficulties in the production and delivery of high grade cream. Excessive rains which were experienced in some districts caused bogging in the paddocks and yards, a condition tending to high bacterial content of milk and cream. Floods occasionally prevented the delivery of cream at frequent and regular intervals. If cream is not of high quality it follows that the butter produced will not be of a high grade. Apart from the influence of such unfavourable conditions on the quality of the cream, there were types of off flavours met with in some butters, which indicated that the faults were within the power of the producers to rectify.

The character of some butter graded indicated that the grading of the cream supplied at some factories was too generous. Careful grading is essential to the maintenance of high standards in the industry.

Cheese Production.

While seasonal conditions were generally favourable to milk production, periods of heavy rainfall in some districts gave rise to unfavourable conditions for cheese manufacture, which were reflected in the quality of the product. Apart from periodic seasonal influences, results of grading disclosed that a number of the defects in the cheese could be attributed to the use of milk below first grade in its manufacture. The serious decline in cheese values on the world's markets has disturbed the minds of those engaged in this and other sections of the industry, and is said by some to have induced laxity on the part of the producer. It must, however, be realised that with the keen competition for markets, quality is a matter of major importance.

The consumer demands high-grade produce, and will be satisfied only when his wants are supplied. The dairyman of to-day cannot afford to be slack in the use of proper methods, which enable him to produce an article of high uniform quality. The variation in the relative values of butter and cheese has a disturbing effect on milk producers, and makes the position of the cheese factory grader difficult.

Any irregularity in the grading of the milk, such as the inclusion of a doubtful supply in choice vats, is a serious detriment to the industry. It penalises the producers of high-grade products and lowers the reputation of the manufacturer and that of the cheese output of the State.

The support of all associated with factory management in the carrying out of systematic grading of milk is a moral obligation they owe to the producers whom they represent. A number of factories continue to produce a high-grade product, while other factories are apparently content with manufacturing a product below a choice or first grade.

The following table shows the quantity of cheese manufactured each month during the period:—

Cheese Production, 1933-34.

	lb.
1933.	
July	723,142
August	868,560
September	1,124,596
October	1,449,470
November	1,494,664
December	1,658,064
1934.	
January	1,519,335
February	1,192,223
March	1,155,815
April	878,262
May	928,089
June	889,546
Total	13,881,766

Instructional Work.

The departmental instructional staff was fully occupied. Defects disclosed by grading officers called for the attention of the instructors, and numerous visits were made to factories with a view to eliminating defects and raising the quality of the product. The co-operation of factory managers and dairy inspectors has materially assisted in investigations.

Research Work.

Mr. O. St. J. Kent, Bacteriologist and Chemist attached to the Dairy Division, has been carrying out investigatory work in co-operation with other officers.

The chief matters dealt with were:—

(*a*) Defects in dairy products.
(*b*) Butter-fat losses.
(*c*) Factory technique.

These activities are referred to in the report of the Bacteriologist.

Dairy Science Schools.

Appreciation by factory managements and operatives of the service rendered the industry by short refresher courses for dairy factory employees and producers was evidenced by the attendance and interest in this work. Schools were held at Malanda, Kingaroy, and Toowoomba.

GRADE HERD RECORDING.

The importance of this section of modern dairying is being realised to a greater extent than at any former period, as is evidenced by the number of dairy herds submitted for production recording in the course of the year, which constitutes a record. The co-operation of all concerned has enabled the work to be carried out efficiently and economically. Manufacturers realise that this activity ensures efficiency, not alone on the farm, but also in the manufacturing branch of the industry; for through efficiency on the farm a more regular supply is made available to the factory, thus reducing manufacturing costs.

BREEDING FOR PRODUCTION.

In the final analysis of a pedigree the successful breeder takes into account the production recorded by the dams whose names appear in the pedigree, and stud breeders who are in the vanguard in dairy livestock management are giving close attention to this phase of their management.

Generally, the breeders of stud dairy cattle have given greater attention to the production recording of their stud units than at any previous period.

The demand of the dairy farmer is now definitely for sires from proved producing strains, and this has required stud breeders to secure official production records.

An analysis of the production records indicates many very creditable performances by representatives of the different breeds.

FACTORY RECORDS.

The systematic inspection of the books of co-operative dairy associations has been carried out by the Inspector of Accounts. The way in which the books of account were kept was satisfactory. The auditors acting on behalf of the various companies have co-operated with the departmental inspector in standardising accountancy methods.

DAIRY COMMITTEES.

The inauguration of dairy committees within the local producers' associations and the system of short courses of instruction for the leaders have been keenly appreciated in the dairying districts. One hundred and twenty-six dairy committees are now functioning. To date, four courses of instruction have been held, and have been attended by forty-seven leaders. The courses include lectures and demonstrations in the laboratories of the Department and at the Animal Health Station. The subjects dealt with are bacteriological and microscopic work, diseases in stock, inoculation of stock, post-mortem examinations, &c. The interest in the activities of the man on the land in general has been quickened by visits to the Hamilton Cold Stores, the Abattoir, the Cotton Ginnery, stud farms, and a butter factory.

Personal and written communications are highly appreciative of the service rendered by departmental officers with whom they come in contact.

VETERINARY SECTION.

The needs of the dairying community in respect of the control of the health of stock have been served by the veterinary officers attached to the Dairy Branch. Greater attention is being paid to this section of animal husbandry, in an endeavour to avoid the economic losses sustained by producers in this direction.

CERTIFIED MILK.

Regulations under the Health Acts have been gazetted governing the production and delivery of two qualities of milk—viz., "Certified Milk" and "Milk from a Certified Dairy." While the chemical and bacteriological standards are the same for both qualities, the former provides for the effective cooling and bottling of milk, while the latter may be delivered from the can following the usual custom. High standards of hygiene are required in respect of the premises from which either quality of milk may be sold.

It is anticipated that the scheme will have a considerable influence on the establishment of a superior milk supply in the city area.

Attached hereto are reports submitted by the Senior Grading Inspector, Dairy Science Officer, Inspector of Accounts, and the Senior Herd Tester, covering their respective activities.

ACKNOWLEDGMENT.

I desire to place on record my appreciation of the full co-operation and assistance rendered at all times by the managements of the several dairy associations, particularly those which have so wholeheartedly supported the Department in furthering production recording. I wish to record, also, the zeal and assiduity of the producers' representatives on the Dairy Cattle Improvement Board and the Butter and Cheese Boards with whom I have been associated during the past year. My thanks are extended also to the officers of the Dairy Branch for their very full co-operation in furthering the interests of the industry.

CHAS. McGRATH,
Supervisor of Dairying.

STAFF REPORTS.

GRADING.

Mr. G. H. E. Heers, Senior Grading Inspector, reports:—

In reviewing the dairying industry for the year ended 30th June, 1934, it is gratifying to be able to report that Queensland continues to advance, particularly in regard to the production of butter, which was 23,889,679 lb. above the quantity produced last year. The exportable surplus has now reached the high figure of 1,766,875 boxes, approximately the amount exported from the whole of Australia about six years ago.

Although the winter of 1933 was somewhat dry, abundant rains fell over most of our dairying areas from October right through the summer months, abnormal falls being registered over our regular wet season in the new year, causing rank pastures in many localities.

The quality of cheese, which was regarded as most unsatisfactory the previous year, on grading results remains practically the same. Butter, however, has improved appreciably, the grading figures showing an increase of 7·1 per cent. of choice grades over the preceding year. In this regard it is pleasing to note that while previously unsalted butters gave us much concern, the grading percentages of these go to show that definite progress has been made in respect of the elimination of yeasty ferments which affected the quality of our unsalted butters in recent years. The present figures for choice unsalted butter are 61·7 per cent., as against 33·9 per cent. in 1932-33.

Notwithstanding the improvement mentioned, the general quality of our dairy products cannot be regarded as satisfactory. The depressed market and lower prices ruling overseas must be considered a contributory cause, for lower returns bring in their wake laxity on the farm. The abnormal wet season also brought about conditions detrimental to the production of high-grade quality butter and cheese. Included in these may be mentioned rank herbage, weeds, and the mouldy conditions prevailing in many of our heavily-grassed pastures.

The continuous rains also caused unsanitary conditions to temporarily exist at many of our dairies situated in the lower and ill-drained localities. Another factor, however, was the practice of several factories not grading their cream supply out into their various grades, as provided for under the Dairy Produce Acts. There was a marked decrease of weedy, cooked, and processed taints. Bad odours in otherwise good butters were also less in evidence this year.

The most pleasing feature of the period under review was the improvement in the character of our butter, particularly when compared with that of the preceding year, when much of it was processed down to resemble a plain stearine fat. With a return to more normal conditions, it is confidently hoped that a general improvement will result.

From a manufacturing point of view the position is fairly satisfactory, more particularly as regards the butter section. Several factories have been penalised for coarse textures. Stickiness also made its appearance in some of the coastal factories late in the season, but was not excessive.

Manufacturers appear to be more alert to the advantages of making their butter carry the maximum water content, the general average being much higher and more uniform than formerly. There were, however, quite a number of instances where the legal standard was exceeded, and in such cases the butter was prohibited from export.

Colour faults were not excessive, while packing, finishing, and marking of both butter and cheese were satisfactory.

In addition to examining all dairy produce exported from the port of Brisbane, State officers also gave attention to the requirements of local trade in so far as Brisbane and suburbs were concerned. In this regard it can be reported that generally the quality of butter sold on the local market was up to the standard required. There were, however, some cases of seizure on account of the composition failing to comply with the legal standards.

Following is a summary of examinations made by State officers at Brisbane for the twelve months July to June, 1933-34:—

BUTTER.

Month.	Choice.	First.	Second.	Third.	Total.
July	13,077	21,820	2,357	509	37,763
August	27,433	20,091	2,050	325	49,899
September	30,770	26,520	4,650	2,230	64,170
October	48,809	42,975	9,387	2,268	103,439
November	62,786	106,947	15,739	3,402	188,874
December	59,193	120,697	15,585	3,469	198,924
Six Months	242,068	339,030	49,768	12,203	643,069
January	62,053	168,425	19,239	7,832	257,549
February	49,606	115,060	14,096	8,252	187,014
March	24,374	121,754	11,079	8,162	165,369
April	35,641	85,553	8,369	3,852	133,415
May	56,449	70,810	5,327	1,235	133,821
June	37,330	34,622	2,363	250	74,565
Six Months	265,453	596,224	60,473	29,583	951,733
Totals	507,521 (31·8 per cent.)	935,254 (58·7 per cent.)	110,241 (6·9 per cent.)	41,786 (2·6 per cent.)	1,594,802 boxes
Examined at Gladstone	..	..	..	..	147,894
Grand Total	..	..	..	..	1,742,696

CHEESE.

Month.	First.	Second.	Third.	Total.
July	654	614	..	1,268
August	1,757	1,718	42	3,517
September	1,670	1,928	10	3,608
October	2,066	2,595	110	4,771
November	2,809	4,836	537	8,182
December	1,276	3,668	451	5,359
Six months	10,232	15,359	1,150	26,741
January	1,812	5,725	871	8,408
February	892	3,517	385	4,794
March	978	3,613	945	5,536
April	773	1,425	238	2,436
May	1,039	2,168	49	3,256
June	1,626	1,389	30	3,045
Six months	7,120	17,837	2,518	27,475
Totals	17,352 (32 per cent.)	33,196 (61·2 per cent.)	3,668 (6·8 per cent.)	54,216

CHEMISTRY AND BACTERIOLOGY.

Mr. O. St. J. Kent, Dairy Science Officer, reports:—

Field Work.—During the year visits were made to butter and cheese factories, where investigations of a chemical and bacteriological nature were carried out. These visits were made in response to calls from factories where some trouble had been experienced, and improvements in butter and cheese quality had usually been effected.

It is pleasing to note that there is a decided improvement in the methods employed in carrying out tests so essential for the correct control of butter composition and quality. The acidity test, the neutralisation process, and moisture tests are all receiving keener attention in many of the factories.

In one factory an electric heater especially designed for moisture testing is in use, and it provides a very satisfactory and clean method of carrying out this test. Its use will, no doubt, expand rapidly once it becomes known.

As a result of factory visitations, several factories have changed their neutralising methods, with a resultant saving in manual labour and an improvement in butter quality.

Laboratory Work.—An investigation of considerable importance has been initiated on "Butter-fat Losses in Butter Milk," and so far more than half of the butter factories are co-operating with us in this work, but it is hoped that before long the other factories will also join with us. It is intended to carry out this research work over at least a twelve-monthly period, so that all factors may be taken into consideration when correlations are finally made. The data collected so far is most interesting, but it is too early yet to form any definite conclusions.

An investigation into the keeping qualities of some thirty butters, which are being submitted to an eight weeks' storage test, is also in progress. Previous work along similar lines has indicated that the acidity of butter is an important factor in regard to its keeping quality, and it is hoped that the results obtained from this work will throw more light on this subject.

In the laboratory, also, studies have been made on certain defects found in butter. Such defects as cheesy flavour, cooked flavour, and surface taint have received attention. The cheesy flavour, which occurs more often during the summer months, is due either to the use of cream that has been carelessly handled on the farm, or to faulty methods or equipment in the factory. It is a defect that could be overcome by more frequent deliveries during the hot weather, and also by maintaining all equipment in the factory in good order and condition. Faulty vats and faulty churns, difficult to maintain in satisfactory condition, are often the cause of defects similar to this.

During the year many miscellaneous dairy samples were received and examined for different purposes.

DAIRY SCIENCE SCHOOLS.

Short courses of instruction in the dairy sciences have been conducted in the course of the year at Toowoomba, Malanda, and Kingaroy. These schools were arranged for butter and cheese factory employees and farmers, and were found to be a very welcome addition to the Department's field work. There is no doubt that there is great need for further extension work of this nature.

FACTORY ACCOUNTS.

Mr. G. B. Gallwey, Inspector of Factory Accounts, reports:—

The inspections of the accounts of dairy associations south of Rockhampton have been carried out periodically during the year. Opportunity was taken to inspect the accounts of the associations on the Atherton Tableland during the progress of a dairy science school at Malanda.

The amended system of accounts is in operation throughout the State, and is working most satisfactorily.

The distribution of over-run generally complied with the regulations.

The survey of the balance-sheets was continued, and the transactions of the butter factories for the year ended 30th June, 1933, showed the following:—

Average cost of manufacture per lb.	3·91d.
Number of suppliers	24,048
Amount distributed to suppliers ..	£3,479,496
Trade and wages payments	£1,139,126
Average price per lb.	8·89d.

The cost of production shows a decrease of ·22d. per lb. over last year. The return to the supplier is exceptionally low, being 2·77d. below that of 1932. Depressed markets overseas have been responsible. The position will be materially improved during the coming year through the operation of the Australian Stabilisation Scheme.

An increase in the number of suppliers was again shown, there being 1,833 more than last year.

The balance-sheets of the cheese factories did not permit of a complete analysis. The amended Act came into operation only in January, thus allowing less than six months for the preparation of the accounts. The uniform accounts should be presented this year.

Lectures were delivered at dairy science schools for factory employees and to farmers. Addresses to the latter were introduced in North Queensland, and the innovation proved most successful. It was found that by holding meetings in local areas more effective work was accomplished than by centralising instructional activities.

The education of the farmer on all aspects of the industry is vital to its wellbeing.

HERD TESTING.

Mr. L. Andersen, Senior Herd Tester, reports:—

From a productive point of view, the past season has been one of the best for many years. The season was favoured with a good rainfall, which was so well distributed that the usual dry spells which, unfortunately, are so frequent in Queensland, were entirely absent. Bounteous winter rains resulted in a good spring, with plenty of feed for our dairy herds, and the cows freshening in good condition responded with a record production which, to some extent, compensated our dairy farmers for the low prices obtaining for dairy produce during the year.

It is pleasing to report that the herd-recording work has made splendid progress during the year, and this is, to a great extent, due to the co-operation of most of our butter and cheese factories. The new scheme which was inaugurated during the previous season has now had a full year's trial, and has, generally speaking, proved very successful.

When the scheme was introduced some eighteen months ago, herd-recording was at a very low ebb, only 170 herds being under test, while at the end of June no less than 982 herds had been tested during the past season. Although this is a splendid record within so short a period, I am confidently looking forward to still further improvement during the coming season. No less than thirty butter and fifteen cheese factories have rendered their assistance by carrying out the testing of milk samples from suppliers submitting their herds for testing. Some of these butter factories performed a considerable amount of work in this direction, and it should be noted that the Warwick Co-operative Dairy Association's Mill Hill factory tested sixty herds, representing nearly 2,000 cows.

A large number of herds was also submitted at the following factories:—Toowoomba 56, Dalby 41, Kingston 36, and Caboolture 51 herds.

The following co-operative dairy associations assisted in the herd-recording movement during the year:—

Butter Factories.—Atherton, Caboolture, Chinchilla, Downs, Esk, Gayndah, Killarney, Logan and Albert, Maleny, Millaa Millaa, Oakey, Queensland Farmers', Roma, Southern Queensland Dairy Company, Stanley River, Warwick, and Wide Bay.

Cheese Factories.—Biddeston, Daredale, Downs, Greenmount, Moola, Pittsworth, Quinalow, Rosalie, and Warwick.

Unfortunately, several big associations have so far stood out of the movement, and, in order to cope with the work, it was found necessary to enlist the services of local dairy inspectors to carry out testing work for about one day weekly in several centres. As previously stated, 982 herds passed through our registers, representing 29,521 cows, while at least another fifty dairymen have made application to commence as soon as their cows freshen.

Grouped in districts the herds submitted were distributed as follows:—Darling Downs 298, Moreton 155, Wide Bay 244, Burnett 136, Central 133, and Atherton 17 herds. Herds were submitted from practically every district in the State where dairying is carried on, such as Atherton, Silkwood, Mackay, and Central; from the extreme southern border as far as Roma in the west and Goondiwindi in the south-west.

In the course of the year the records of some 9,700 cows were computed, and the average production of these indicated an average production of 3,907 lb. milk and 161 lb. butter-fat per cow. In spite of a better season these figures are below those of last year, when the average production of butter-fat was calculated at 166 lb. This is, no doubt, due to the heavy increase of new herds submitted, whereas last year the herds under test were largely owned by enthusiastic dairymen who had tested regularly for some years, and consequently had effected considerable improvement by culling; the entry of 600 new unimproved herds must naturally affect the average figures.

Herds submitted from the Darling Downs led in average production per cow with a return of 186 lb. butter-fat. This return is also considerably below that of previous years, due to the fact that approximately 200 new unimproved herds were submitted on the Downs. The Moreton and Burnett districts are running equal with a return of 159 lb. per cow, while the returns from Wide Bay were 147 lb., and from Central 139 lb.

Seventeen herds were submitted on the Atherton Tableland, and the average production is calculated at 185 lb. A slight increase on last year's production figures is noted in the returns from the Moreton, Wide Bay, and Central districts.

Only four cows passed the 400-lb. butter-fat mark. Three of these returns came from the Downs and one from Atherton, the highest producer being a cow from the Allora district. Strange to say, the cow was named "Toughie," but she was apparently a good one, as she produced 11,826 lb. milk and 416 lb. butter-fat in a lactation period of 273 days.

One hundred and twenty-six cows, representing 1·3 per cent., yielded between 300 lb. and 400 lb. butter-fat, while 1,962 cows produced from 200 lb. to 300 lb., and approximately 6,500 cows produced from 100 lb. to 200 lb. butter-fat. More than 1,100 cows failed to reach the 100-lb. mark of butter-fat for the lactation, and if only these unprofitable cows are culled as a result of this year's testing, we have at least assisted to rid the industry of 1,100 "boarders." Unfortunately, however, as only 4 per cent. of the cows in the State were tested, it would appear that there are many thousands left.

The highest producing herd was recorded in the Pittsworth district, and the returns show that 22 cows produced an average of 287 lb. butter-fat for the lactation, while another good herd of 29 cows returned 269 lb. butter-fat per cow.

Quoting figures from large herds, the best returns are shown by another herd submitted from the Oakey district. In this case 79 cows produced an average return of 223 lb. butter-fat per cow. The last two herds mentioned have been under test continuously for a period of eight years, and the owners are still very keen to continue the good work. The owner of the large herd informed me recently that his experience had shown him that continuous testing and culling was an absolute necessity, in order to keep the herd up to a certain standard.

Records show that 91 dairymen owned herds which had a production of more than 200 lb. butter-fat per cow. While this is a fair return, our registers also indicate that 101 farmers were endeavouring to make a living from cows, the average of which did not reach 125 lb. butter-fat. It may be of interest to show where these herds are situated:—

No. of Herds Producing more than 200 lb Butterfat per Cow.

Downs.	Moreton.	Wide Bay.	Burnett.	Central.	Atherton.	Total.
52	8	15	8	6	2	91

No. of Herds Producing Less than 125 lb. Butterfat per Cow.

Downs.	Moreton.	Wide Bay.	Burnett.	Central.	Atherton.	Total.
7	13	39	11	31	..	101

To further illustrate the productiveness of our main dairying districts, I have prepared a list showing the production of milk and butter-fat of the 25 best herds in each district:—

District.	Herds.	Number of Cows.	Average Milk.	Average Butter-fat.
Downs	25	526	5,774	236
Wide Bay	25	396	4,466	200
Burnett	25	479	4,675	196
Moreton	25	489	4,619	195
Central	25	454	4,117	182

To show what improvement can be made by continuous testing, I am quoting below two herds from the Warwick district.

Herd No. 1 has been tested regularly for a number of years, whereas the Babcock tester has only been introduced to No. 2 herd during the last year.

	Herd I. Butterfat lb.		Herd II. Butterfat lb.
Average production per cow	241	..	135
25 cows produce	6,025	..	3,375
Value at 1s. per lb... ..	£301 5 0	..	£168 15 0

Another comparison is taken from the North Coast district, and shows the following interesting figures:—

	Cows.	Average Butter-fat.	Total Butter-fat.	Returns at 1s. per lb.
				£ s. d.
Herd No. 1 ..	18	260	4,680	234 0 0
Herd No. 2 ..	35	131	4,585	229 5 0

Similar cases could be quoted at length, but sufficient evidence is indicated in our records to show how important the herd recording is to our dairy industry.

If our dairy farmers are going to make a living from the cow, they must be prepared to carry out the small amount of detail work which is necessary to find out which cows pay and which are the "boarders." It always paid to test, but now dairying will not pay without testing.

As is to be expected, the recording and computing work in regard to nearly 1,000 dairy herds has entailed an immense amount of labour during the past year.

Numerous letters of appreciation of the work done by this branch have been received during the last few months, and intimating that many farmers are anxious to continue the testing during the next season.

Factory.	Number of herds.	Number of cows tested.	Number of tests.	Cows completed lactation.	Average yield of milk.	Average yield of butter-fat.	Number of cows yielding under 100 lb. butter-fat.	Number of cows yielding from 100 to 200 lb. butter-fat.	Number of cows yielding from 200 to 300 lb. butter-fat.	Number of cows yielding from 300 to 400 lb. butter-fat.	Number of cows yielding over 400 lb. butter-fat.
DARLING DOWNS, 1933-34.											
					Lb.	Lb.					
Chinchilla Co-Operative, Chinchilla ..	8	149	250	25	3,530	132	3	19	3	..	..
Downs Co-Operative—											
Toowoomba	56	1,089	2,190	219	5,067	199	4	111	94	9	1
Dalby	41	1,114	2,322	192	4,064	161	19	137	33	3	..
Clifton	22	433	662	93	4,749	196	6	48	37	2	..
Goombungee	1	24	69	15	2,974	128	2	13	..	..	..
Miles	8	198	647	91	3,447	138	12	70	9	..	..
Crow's Nest	6	60	60	..	..	..	..	..	..	..	..
Killarney Co-operative, Killarney	20	805	1,775	278	4,815	196	11	154	104	9	..
Oakey Co-operative, Oakey	19	614	1,715	287	5,057	197	3	148	115	20	1
Roma Co-operative, Roma	5	174	262	13*	4,082	169	1	9	3	..	..
Warwick Co-operative—											
Mill Hill	60	1,961	5,282	925	4,624	187	51	534	315	25	..
Allora	17	546	1,310	253	4,822	184	17	150	78	7	1
CHEESE FACTORIES.											
Biddeston Co-operative, Biddeston ..	1	8	8	..	..	..	..	..	..	..	..
Daredale Cheese Company, Irvingdale ..	1	3	3	..	..	..	..	..	..	..	..
Gowrie Junction Cheese Factory	1	24	71	..	..	..	..	..	..	..	..
Greenmount Dairy Company, Greenmount	4	96	219	8	5,127	186	..	5	3	..	..
Moola Co-operative, Kaimkillenbun ..	1	30	30	..	..	..	..	..	..	..	..
Pittsworth Dairy Company, Pittsworth ..	10	137	318	60	5,224	203	..	23	34	3	..
Quinalow Cheese Association, Quinalow ..	2	29	29	..	..	..	..	..	..	..	..
Rosalie Cheese Company, Kingsthorpe ..	2	14	28	8	3,079	148	..	8	..	..	..
Downs Co-operative, Hodgson Vale and Wyreema..	3	73	173	19	4,545	188	..	11	8	..	..
Warwick Co-operative Dairy Association, Bony Mountain, Greymare, Victoria Hill	7	167	485	74	5,455	212	..	34	38	2	..
Sundry Herds Tested at Brisbane	3	107	385	64	5,591	220	..	20	43	1	..
Totals	298	7,855	18,293	2,624	..	..	129	1,494	917	81	3
General Averages	..	..	..	..	4,678	186	..	..	..	..	..

* Average for one herd only.

Factory.	Number of herds.	Number of cows tested.	Number of tests.	Cows completed lactation.	Average yield of milk.	Average yield of butter-fat.	Number of cows yielding under 100 lb. butter-fat.	Number of cows yielding from 100 to 200 lb. butter-fat.	Number of cows yielding from 200 to 300 lb. butter-fat.	Number of cows yielding from 300 to 400 lb. butter-fat.	Number of cows yielding over 400 lb. butter-fat.
BURNETT, 1933-34.											
Port Curtis Co-operative, Monto	36	1,144	2,327	105	4,004	174	6	77	21	1	..
Gayndah Co-operative, Gayndah	27	882	2,386	276	3,366	140	39	219	18	..	..
Maryborough Co-operative, Mundubbera ..	36	933	2,177	87	3,224	137	13	59	15	..	..
Kingaroy Line Tested at Brisbane.. ..	36	1,348	3,940	636	4,202	171	58	391	170	17	..
Totals	135	4,307	10,830	1,104	..	..	116	746	224	18	..
General Averages	..	..	..	..	3,842	159	..	..	..	..	..
CENTRAL, 1933-34.											
Port Curtis Co-operative—											
Bundaberg	22	582	1,209	90	2,671	109	37	49	4	..	..
Gladstone	42	1,236	3,559	508	3,494	154	102	354	51	1	..
Wowan	31	842	2,222	251	3,858	158	23	168	50	10	..
Rockhampton District Tested at Brisbane..	38	1,032	2,639	404	2,819	119	134	256	14	..	..
Totals	133	3,692	9,629	1,253	..	..	296	827	119	11	..
General Averages	..	..	..	..	3,269	139	..	..	..	..	..

HERD-TESTING RETURNS—*continued.*

Factory.	Number of herds.	Number of cows tested.	Number of tests.	Cows completed lactation.	Average yield of milk.	Average yield of butter-fat.	Number of cows yielding under 100 lb. butter-fat.	Number of cows yielding from 100 to 200 lb. butter-fat.	Number of cows yielding from 200 to 300 lb. butter-fat.	Number of cows yielding from 300 to 400 lb. butter-fat.	Number of cows yielding over 400 lb. butter-fat.
ATHERTON TABLELAND, 1933-34.											
					Lb.	Lb.					
Atherton	17	518	1,295	176	4,493	185	6	119	46	4	1
MORETON, 1933-34.											
Esk Co-operative Dairy Association ..	13	668	1,873	206	4,422	174	14	151	40	1	..
Logan and Albert Association, Beaudesert	26	1,098	2,717	440	3,905	153	58	322	60	..	..
Queensland Farmers' Co-operative—											
Booval	16	421	1,122	94	4,247	175	3	63	28	..	..
Boonah	20	539	1,362	151	4,028	171	5	92	53	1	..
Grantham	10	423	1,310	208	4,302	178	13	167	28	..	..
Laidley	11	291	736	110	3,561	141	18	81	11	..	..
Rosewood	6	191	511	77	3,844	161	4	60	13	..	..
South Queensland Dairy Company, Kingston	36	1,563	4,510	717	3,535	147	80	528	106	3	..
Sundries Tested at Brisbane	17	450	1,314	97	3,648	161	7	85	5	..	..
Totals	155	5,644	15,455	2,100	..	..	202	1,549	344	5	..
General Averages	..	..	..	..	3,868	159	..	..	..	..	..
WIDE BAY, 1933-34.											
Caboolture Co-operative Dairy Association—											
Caboolture	51	1,209	2,848	152	2,989	130	48	91	13	..	..
Eumundi	28	746	1,892	225	3,695	152	34	166	25	..	..
Pomona	24	833	1,684	157	3,578	149	10	134	13	..	..
Stanley River Co-operative, Woodford ..	15	577	1,358	206	3,232	141	49	132	25	..	..
Maleny Co-operative Dairy Association, Maleny	25	894	2,558	306	3,746	174	40	195	64	7	..
Wide Bay Co-operative Dairy Association—											
Gympie	47	1,414	4,330	586	3,598	153	60	439	87	..	..
Cooroy	5	115	195	24	4,224	159	1	19	4	..	..
Gympie District Tested at Brisbane ..	49	1,717	5,740	786	3,456	141	119	586	81	..	..
Totals	244	7,505	20,605	2,442	..	..	361	1,762	312	7	..
General Averages	..	..	..	..	3,487	147	..	..	..	..	..
SUMMARY OF HERD RECORDING, YEAR 1933-34.											
Darling Downs and Maranoa	298	7,855	18,293	2,624	4,678	186	129	1,494	917	81	3
Moreton	155	5,644	15,455	2,100	3,868	159	202	1,549	344	5	..
Wide Bay	244	7,505	20,605	2,442	3,487	147	361	1,762	312	7	..
Burnett	135	4,307	10,830	1,104	3,842	159	116	746	224	18	..
Central..	133	3,692	9,629	1,253	3,269	139	296	827	119	11	..
Atherton Tableland	17	518	1,295	176	4,492	185	6	119	46	4	1
Totals	982	29,521	76,107	9,699	..	..	1,110	6,497	1,962	126	4
General Average of Cows completing Lactation	..	..	..	..	3,907	161	(11·44 Per cent.)	(66·98 Per cent.)	(20·22 Per cent.)	(1·299 Per cent.)	(0·0412 Per cent.)

Lactation returns furnished 533 owners.

REPORT OF THE CHIEF ENTOMOLOGIST.

I have the honour to submit herewith an account of the various activities of the Division of Entomology and Plant Pathology for the year ended 30th June, 1934. Following the usual custom, the entomological work of the Division is discussed by myself, while Mr. J. H. Simmonds is responsible for the review of the pathological activities.

STAFF AND ACCOMMODATION.

During the year two new appointments were made, the new officers being Messrs. H. E. Young and W. J. S. Sloan. Mr. Young joined the service on 2nd January, and is engaged exclusively on the investigation of pathological problems on behalf of the Forestry Sub-Department, his appointment being financed entirely by that branch. Mr. Sloan joined the service on 1st April, and has since been stationed at Nambour, where he is acting as assistant to Mr. W. A. T. Summerville, and is incidentally acquiring a good insight into the handling of an entomological field station. It is intended that Mr. Sloan take up the investigation of cotton pests at the commencement of the forthcoming cotton season.

Mr. T. H. Strong, who was appointed as a temporary Assistant to Entomologist in September, 1932, ceased duty at the beginning of February in order to resume his University studies. The present arrangements, however, provide for his return to the Division in November, 1934.

Miss D. Goy was responsible for the clerical work until February, when she was transferred to the Government Botanist's branch, and the clerical duties have since then been carried out by Mr. A. C. Boyle.

QUEENSLAND FRUIT FLY.

As in previous years, the Queensland fruit fly, *Chætodacus tryoni* Froggatt, received considerable attention from the entomological staff. A distinctly interesting experiment was carried out at Stanthorpe by Mr. Hubert Jarvis, who is in charge of the Entomological Field Station in that district. A block of Granny Smith apple trees in a Severnlea orchard was very kindly made available by the orchardist, and of the fifty-six trees contained therein, forty were sprayed four times at approximately weekly intervals during the incidence of a moderately severe fruit fly attack, the remaining sixteen trees being left as controls. The insecticide used was a nicotine sulphate-white oil spray, the strength being half pint nicotine sulphate and half gallon white spraying oil to forty gallons water. This spray evidently exercised a distinctly repellant influence on the Queensland fruit fly, and at the conclusion of the experiment only 154 fly-stung apples were obtained from 171 cases of fruit harvested from the sprayed trees. Mr. Jarvis estimated that 99·1 per cent. of the sprayed fruit was free from infestation, whereas in the case of the control trees only 24·1 per cent. escaped infestation. The total cost of spray materials in this experiment amounted to £1 5s. 6d.

This experiment was suggested as a result of observations made during the 1932-33 season, when it was noted that trees sprayed with the mixture displayed distinct freedom from infestation. The experiment now discussed is the first large scale test of this mixture as a potential fruit fly repellant, and further observations are necessary before being convinced as to its efficiency for this particular purpose. Furthermore, some consideration must be given to the possible effect of repeated applications of oil sprays at such short intervals as one week. Nevertheless, the experiment has produced interesting and important results, particularly in view of the fact that in codling moth control experiments the nicotine sulphate-white oil mixture gave the best results of all sprays tested during the 1933-34 season.

At the request of the Fruit Fly Sub-committee of the Deciduous Fruits Sectional Group Committee another fruit fly repellant experiment was initiated at Myrtletown late in October. The Committee suggested that a repellant mixture of 1 oz. iodoform and 2 oz. fish oil should be placed in suitable containers hung in trees throughout the orchard which it was desired to protect. This experiment was carried out in a somewhat modified form by Mr. A. R. Brimblecombe, but, unfortunately, the results were inconclusive. This was due largely to the fact that fruit fly infestation in the Myrtletown district was at a distinctly low ebb during the course of the experiment.

CODLING MOTH.

The codling moth control experiments carried out by Mr. Jarvis, at Stanthorpe, during the 1932-33 season, were repeated with certain modifications and additions during 1933-34.

It is pleasing to be able to record the fact that the nicotine sulphate-white oil spray again gave the most satisfactory results, 93·9 per cent. of the fruit on trees sprayed with this mixture being free from codling moth infestation. This compares favourably with 84·6 per cent. of sound fruit harvested from the trees sprayed with arsenate of lead, which was again the second most efficient spray. The control trees yielded only 25·6 per cent. of uninfested fruit.

As indicated in the discussion of fruit fly experiments, the nicotine sulphate-white oil spray also gives distinct promise of being a successful fruit fly repellant.

It is expected that the full results of this codling moth control experiment will be published in the "Queensland Agricultural Journal" at an early date.

BLACK PEACH APHIS AND GREEN PEACH APHIS.

An experiment for the control of black peach aphis, *Aphis persicæ-niger* Smith, and green peach aphis, *Myzus persicæ* Sulz., was initiated in June. A new spray associated with a new banding mixture is being tested for the control of these two pests, and it is hoped that the two experimental areas chosen will yield some definite results during the new Departmental year.

GRAPE VINE SCALE.

A species of *Lecanium* was rather prevalent on grape vines at Stanthorpe and caused a considerable amount of anxiety to grape growers. Mr. Jarvis, however, was of the opinion that it did comparatively little damage in spite of its abundance, and records the fact that it was readily controlled by oil sprays during the dormant period.

CABBAGE MOTH.

Further field experiments designed to test non-arsenical sprays and dusts for the control of the caterpillars of the diamond-back moth, *Plutella maculipennis* Curt., and the centre grub, *Oebia undalis* F., were carried out at Nudgee and Sunnybank by Mr. J. A. Weddell and at Stanthorpe by Mr. Jarvis. These experiments provided further proof of the fact that both pests can be satisfactorily controlled and that certain non-arsenicals are just as efficient as the arsenicals.

CITRUS SCALE INSECTS.

The citrus scale insect investigation which has occupied most of Mr. W. A. T. Summerville's time at the Nambour Entomological Field Station during the past three years has now been finalised. The results of this very comprehensive investigation are at present being published in the Departmental Journal and it can be claimed that this publication answers practically every question that a citrus grower in any major citrus district in Queensland is likely to ask concerning the life history and control of the various species of scale insects attacking citrus.

BLACK PASSION FRUIT BUG.

The black passion fruit bug, *Leptoglossus bidentatus* Montr., appeared in epidemic proportions during the autumn months in quite a large number of coastal citrus orchards between Gympie and Brisbane. It generally settled in enormous numbers on a comparatively small proportion of trees in the invaded orchards and fed freely on the fruit of these trees, with a consequent very serious loss thereof. A single experiment carried out by Mr. Summerville, at Palmwoods, showed that approximately 70 per cent. of the bugs, which were, of course, all in the adult stage, were killed by the application of the resin-soda-fish oil spray evolved for the control of the bronze orange bug. In cases where a spray was not applied it was observed that very large numbers of bugs could be readily dislodged from the trees on which they were feeding during the early morning, when they were rendered sluggish by the comparatively low morning temperatures prevailing during the incidence of this epidemic. When the bugs have been shaken to the ground they can, of course, be readily collected and destroyed. This species has not been observed breeding on citrus but it is found freely in all stages on different species of *Curcurbitaceæ* and *Passifloraceæ*.

OTHER CITRUS INVESTIGATIONS.

With the completion of the citrus scale investigation it is now possible to devote more attention to other citrus pests.

Arrangements were accordingly made for a survey of the incidence of fruit fly in citrus during the autumn months. The Queensland fruit fly, of course, is not nearly such a serious menace to citrus as it is in the case of deciduous fruit crops. Nevertheless, it is considered that this pest should receive some attention in so far as it is associated with citrus, and further work thereon will be carried out during the new Departmental year.

It was also hoped that some field experiments for the testing of certain poison lures and other measures for the control of the fruit-sucking moths might be carried out during the autumn months. Fortunately, from the grower's point of view, these pests were not sufficiently numerous to provide adequate facilities for field experimental work.

The citrus root bark channeler, *Pseudomydaus citriperda* Tryon, is still under investigation, and the leaf-eating weevil, *Eutinophæa bicristata* Lea, is also the subject of study on an intensified scale.

The position with regard to the control of citrus pests has improved very appreciably since the initiation of the Nambour Field Station, and adequate control measures are now available for the bronze orange bug, *Rhoecocoris sulciventris* Stole, the larger horned citrus bug, *Biprorulus bibax* Breddin, and the various scale insects. The completion of the work on the pests just mentioned has therefore cleared the way for the intensified investigation of citrus pests of lesser but appreciable importance.

BANANA THRIPS.

The appointment of Mr. N. E. H. Caldwell towards the end of the 1932-33 Departmental year made possible an extensive programme of field experiments designed to elucidate the problem of the control of the banana thrips, *Scirtothrips signipennis* Bagnall.

Large scale field experiments were initiated at Cootharaba, Kin Kin, Calico Creek, and Beenleigh. Shortly after the commencement of this field experimental programme, the comparative scarcity of thrips caused a certain amount of anxiety, for it was considered possible that a light incidence of thrips might result in little or no contrast between treated and untreated bunches of bananas. As the work progressed, however, it became evident that there would be a distinct contrast between the treated and untreated fruit and further evidence has been obtained of the value of nicotine dusts for dealing with this very serious banana pest.

Mr. Caldwell has also carried out a survey of the distribution of thrips in plantations between Gympie and Tweed Heads, and it is expected that the information obtained from this survey will be of value in determining the movements of suckers during the forthcoming planting season.

As just indicated, the incidence of banana thrips has not been nearly so serious as it was during the previous season, but there have nevertheless been quite appreciable losses of fruit.

It is pleasant to be able to record the fact that quite a number of growers in the infested districts are dusting their plantations with nicotine dusts.

CORN EAR WORM.

Mr. Strong was once more stationed at Biloela, in the Callide Valley, for the purpose of making further observations on the corn ear worm, *Heliothis obsoleta* F., during the summer months. Additional information was obtained with respect to this important pest, and it substantially confirms the observations made by Mr. Strong in the previous season. The losses from corn ear worm in the Callide cotton crops were by no means extensive, but in certain southern areas the attack was severe.

SWEET POTATO WEEVIL.

The sweet potato weevil, *Cylas formicarius* F., was the subject of inquiries from the Woolooga district in the South Burnett. A set of field experiments has accordingly been initiated at that centre in order to test out various control measures and to endeavour to obtain information with respect to possible varietal resistance to this pest.

TOBACCO LEAF MINER.

The tobacco leaf miner, *Phthorimœa operculella* Zell., was extremely abundant in a few tobacco areas, both in Southern Queensland and in the northern parts of the State. It is rather significant that the most severely infested district in the North is one in which efforts are being made to establish potato growing. Furthermore, the most severely infested district in Southern Queensland is in close proximity to a district in which potatoes are regularly grown on a somewhat extensive scale. There is thus a very distinct suspicion that the potato crops serve to carry this pest over in very considerable numbers from one tobacco crop to another. The severity of the attack in one of the tobacco crops is indicated by the fact that five or six plantings of seedlings failed to produce a satisfactory stand of tobacco.

The tobacco leaf miner is one of the pests to which Mr. D. O. Atherton, of the Atherton Entomological Field Station, is devoting his attention.

TOBACCO STEM BORER.

The tobacco stem borer, *Phthorimœa heliopa* Low., is also regarded as a major entomoligical problem in North Queensland and once again Mr. Atherton devoted a great proportion of his time to the investigation of this pest.

Considerable progress has been made in the investigation of both the tobacco stem borer and the tobacco leaf miner, but the investigations have not yet reached the stage at which publication of results is warranted.

The clean up of the old tobacco plants in the Mareeba district during the winter months of 1933 was effectively carried out by many growers. This is considered to be a rather important procedure in view of the fact that the elimination of living tobacco plants for a few months is of material assistance in reducing infestation by the stem borer and the leaf miner in the succeeding tobacco crop. The main complication at Mareeba arose from the fact that there was a considerable amount of delayed harvesting of leaf as a result of the success of a number of abnormally late-planted crops.

TOBACCO SEED-HARVESTING ANTS.

The investigation of the tobacco seed-harvesting ants has been continued during the year under review. Identification of a large number of species implicated in the removal of seed and the destruction of seedlings has recently been obtained from the National Museum in Melbourne. Ecological studies have continued at Mareeba, and observational nests have been transferred to the laboratory, while extensive baiting experiments have been conducted in the field.

TOBACCO BEETLE.

As a result of the heavy carry-over of unsold leaf on many farms in the Mareeba district, there has been a very distinct increase in the tobacco beetle, *Lasioderma serricorne* F. Heat treatment experiments were accordingly carried out by Mr. J. Harold Smith, who demonstrated that to be successful the treatment must be accompanied by very extensive breaking up of the bales and bulks. Without such separation of the hands of tobacco there is little possibility of effective penetration of the heat, and consequently little hope of a satisfactory kill of the tobacco beetle.

WHITE GRUBS.

Mr. Smith has given the white grub problem an increasing amount of attention during the last twelve months, and a great deal of field observational work has been undertaken. This includes an attempt to associate the intensity of white grub infestation with certain soil factors, as well as with the condition of plant growth in the infested pastures. A considerable number of pH determinations have been made, and, so far, these all indicate that the heavily infested soils have a very acid reaction. It is hoped that the investigation of such aspects of the problem will open the way to the application of a control measure which is financially practicable, for it is obvious that the use of ordinary soil fumigants is completely ruled out because of their cost.

PIN-HOLE BORERS OF THE WALNUT BEAN.

Mr. Smith has also devoted much attention to borers associated with walnut bean, which is a problem of outstanding importance in so far as the veneer timbers of Queensland are concerned. Much progress has been made with this project, and it is hoped and believed that finality is in sight. In this connection mention may be made of the fact that the Forestry Department has very generously co-operated by providing a considerable series of valuable experimental logs, which have been subjected to various types of treatment prior to being despatched to the mill.

FURNITURE BEETLE.

It was recently noted that the damage to seasoned timber in Queensland generally ascribed to the furniture beetle, *Anobium* sp., is mainly the work of *Calymmaderus incisus* Lea. As few details are available regarding the life-history and habits of this very important insect, it has been considered desirable to obtain information thereon, and Mr. Brimblecombe has accordingly devoted a considerable amount of attention to this species.

VEGETABLE IVORY BEETLE.

During recent years a considerable number of complaints have been received from drapery firms relative to the destruction of buttons by the Scolytid beetle, *Coccotrypes dactyliperda* F. The infestation generally leads to the more or less complete destruction of the infested buttons, and in some instances extensive injury to the fabric of the garments in the vicinity of the buttons has also been inflicted by the clothes moth. Infested buttons were analysed and were found to have a nitrogen percentage of 1·05, thus ruling out the possibility of the buttons being of casein composition, for were the latter the case the nitrogen content should be in the vicinity of 16 per cent. For this and other reasons it is considered that the buttons subjected to this attack are of vegetable ivory origin.

NOOGOORA BURR SEED FLIES.

During the year under review some twenty thousand flies belonging to the species *Euaresta æqualis* Loew, were liberated in Noogoora burr infested areas in Queensland. Liberations were made at Roma, Grandchester, Brookfield, Brisbane, Biggenden, Humphrey, Biloela, and Gladstone. These colonies of flies were imported from Kansas as immature specimens contained in infested cockle burrs. They were placed in quarantine insectaries in Canberra and on emergence were despatched to Queensland, in which State they were liberated by officers of this Department acting on behalf of the Council for Scientific and Industrial Research, which institution was responsible for the importation. This Trypetid fly is a seed-infesting species and its importation and liberation constitutes the first step in an attempt by Federal authorities to establish biological control of Noogoora burr.

NUT GRASS INSECTS.

Many inquiries are regularly received with respect to the use of certain Coccids for the control of nut grass, which is an increasingly serious menace in cultivated areas in the State. It was accordingly decided to publish an account of an investigation of two of these insect enemies undertaken in Queensland some years ago. The published notes indicate that neither of the species is of any appreciable value in dealing with this serious weed pest.

BEE-KEEPING.

Mr. Henry Hacker has again been responsible for the advisory and inspectional work in connection with bee-keeping. During the year under review 333 apiaries were inspected in the proclaimed districts. The longest inspectional trip commenced at Landsborough and finished at Maryborough, and during the course of that inspection 186 apiaries in areas on and adjacent to the coast were visited. A second inspection was responsible for visits to 50 apiaries in the Brisbane Valley between Muirlea and Yarraman. A total of 47 apiaries were visited in the course of day trips to the following districts:—Strathpine, Redcliffe, Petrie, Capalaba, Tingalpa, Wellington Point, Ormiston, Mount Gravatt, Kuraby, Bald Hills, Carbrook, Mount Cotton West, Mount Glorious, Mount Nebo, Camp Mountain, Samford, Mount Sampson, Kingston, and Brookfield. Finally 50 suburban apiaries were visited.

INSECT COLLECTIONS.

The insect collections at Head Office have been maintained in good condition and have been added to as opportunity offered. Mr. Hacker was responsible for this work, as has been the case in recent years, and towards the end of the year he was engaged in assembling and naming reference collections for the use of the Nambour Field Station and also for despatch to the proposed new field station at Rockhampton.

OTHER TAXONOMIC WORK.

Mr. A. A. Girault devoted most of his time to further work on the very important groups of parasitic *Hymenoptera*.

ILLUSTRATION WORK.

Mr. I. W. Helmsing was once more responsible for all the illustrations used in connection with entomological and plant pathological work. His duties involved the preparation of 40 colour illustrations, 90 black and white figures, and 175 pencil sketches. The black and white plates prepared numbered 15, and 19 colour photographs of various exhibition cases were completed.

BIRD COLLECTION.

Mr. Helmsing was also responsible for the bird collection and for such accessions as were made to it during the year.

TIMBER COLLECTION.

A considerable number of additional specimens of timber showing insect infestation were obtained in the course of investigational and advisory work, the Sub-Department of Forestry once more contributing extensively in this respect.

LIBRARY.

As usual a very large number of exchange accessions have been received in the Divisional Library, and the additional shelving provided towards the end of last financial year is now practically fully occupied. Some binding of frequently used volumes was carried out, and the library may be regarded as being in excellent condition for reference purposes. A number of volumes were also obtained for the Nambour Field Station and the usual subscriptions to scientific periodicals were maintained for all three field stations.

SHOWS.

Exhibits were staged at a number of country shows and the usual display was made at the Royal National Show in August.

WIRELESS ADDRESSES.

A number of wireless addresses were delivered from National Station 4QG, seven of the Head Office staff participating in this work.

ADVISORY WORK.

The amount of advisory work still continues to grow, and a very considerable proportion of the time of officers, both at Head Office and at the field stations, is occupied in handling this most important aspect of Departmental activities.

PUBLICATIONS.

The following contributions by officers of the Division appeared in the "Queensland Agricultural Journal":—

(1) *Termites* (White Ants), by J. A. Weddell.
(2) Codling Moth Control Experiments, 1930-33, by Hubert Jarvis.
(3) The History of Economic Entomology in Australia, by Robert Veitch.
(4) Squirter Disease of Bananas, by J. H. Simmonds.
(5) Cutworm Control, by Robert Veitch.
(6) Experiments with Baits for the Control of Certain Cotton Pests, by D. O. Atherton.
(7) Seed-Harvesting Ants, by J. Harold Smith.
(8) Fruit Fly Control in the Stanthorpe District, by Hubert Jarvis.
(9) Two Insect Enemies of Nut Grass, by W. A. T. Summerville.
(10) The Tobacco Beetle, by J. Harold Smith.
(11) The Tomato "Green Fly" Association, by D. O. Atherton.
(12) Maori Mite Control, by W. A. T. Summerville.
(13) Potato Diseases, by R. B. Morwood.
(14) The Brown Cutworm as a Cotton Pest, by T. H. Strong.
(15) Frog Eye Leaf Spot and Barn Spot of Tobacco, by L. F. Mandleson.
(16) Banana Thrips and the Problem of its Control, by J. Harold Smith.
(17) Citrus Psorosis Control, by L. F. Mandleson.
(18) Additional Recommendations for the Control of Blue Mould of Tobacco, by L. F. Mandleson.
(19) Fungicidal Experiments for the Control of Blue Mould of Tobacco, by L. F. Mandleson.
(20) The House Fly, by J. A. Weddell.
(21) Banana Weevil Borer Control, by J. A. Weddell.
(22) Banana Thrips Control, by Robert Veitch.
(23) Barn Spot of Tobacco—Preliminary Investigations and Flue Curing Experiments, by L. F. Mandleson.
(24) Yeasty Rot of Pineapples and its Control, by H. K. Lewcock.
(25) Bunchy Top of the Banana and its Control, by J. H. Simmonds.
(26) Covered Smut of Barley, by R. B. Morwood.
(27) Products of the Hive, by Henry Hacker.
(28) Queensland Citrus Scale Insects and Their Control, by W. A. T. Summerville.

ROBERT VEITCH, Chief Entomologist.

THE WORK OF THE PATHOLOGICAL BRANCH.

Mr. J. H. Simmonds, Plant Pathologist, reports as follows:—

In compiling this summary of the year's activities of the Pathological Branch, attention has been restricted to that aspect of the work involving special investigation. In addition to this most members of the Branch have attended to a large number of routine inquiries which have occupied a considerable proportion of available time. For convenience the research projects are grouped under the heading of the host concerned.

CEREALS.

Two experiments commenced by Mr. Morwood in the first half of 1933 were concluded during the period covered by this report and are therefore referred to here. Drill sown plots have now been substituted for the single drill methods used in some of the earlier work.

Bunt of Wheat (*Tilletia tritici* and *T. lævis*).—With the increase in the number of proprietary fungicides now available for use in the control of cereal smuts, it has been deemed advisable to test the efficacy of the more important ones under Queensland conditions. The first series embodying 16 different treatments was laid down in 1933 but failed to yield conclusive results owing to the season being a poor one for smut development. This year the work has been repeated, using 14 different bunticides with one series at the Roma State Farm and another at Nobby. In this experiment has been included a comparison of the commercial brands of copper carbonate as suggested in Resolution No. 51 of the Conference of Ministers of Agriculture held in May, 1933.

Covered Smut of Barley (*Ustilago hordei*)—Preliminary experiments for the control of this disease by seed treatment were carried out in 1931 and 1932. In 1933 it was shown that good commercial control could be obtained with Abavit B and formalin, and a pamphlet giving the results of these experiments and their practical application was issued. This year a wider range of fungicides is being tested with a view to bettering these recommendations if possible.

Oats Smut (*Ustilago avenæ*) and *Prairie Grass Smut* (*U. bromivora*).—Owing to the number of inquiries for the effective control of these two smuts there has been included in this year's cereal work experiments involving the trial of 10 different fungicides against the former and 6 against the latter. The results will not be available until the end of the present season.

COTTON.

Careful inspections have been made of those crops grown from imported seed. So far no new disease has been recorded. Angular leaf spot (*Bacterium malvacearum*) was fairly prevalent. The more serious black arm phase of the disease was observed for the first time, but only rarely.

TOBACCO.

Blue Mould (*Peronospora tabacina*) proved a serious factor in reducing the area under tobacco during the past season, the wet spring providing ideal conditions for heavy seed-bed losses. Mr. Mandelson, while devoting a large proportion of his time to the diseases of tobacco, concentrated in particular on the development of fungicides suited to the control of blue mould. Out of a large number of sprays and dusts experimented with he has been successful in obtaining two, namely—copper emulsion and colloidal copper, which will give good commercial control of blue mould in the seed-bed. This is probably the most important advance yet made in the control of blue mould in Australia.

Frog Eye (*Cercospora nicotianæ*).—By reason of the better growing season this disease was much less prevalent and consequently the opportunity for obtaining field data on barn spot was largely lacking. Curing experiments, however, again demonstrated the advantage to be gained by using a high humidity and relatively high temperature during the earlier part of curing.

Nutritional Diseases.—In co-operation with the Agricultural Chemist an attempt was made to elucidate a number of nutritional troubles, but it will be necessary to accumulate a large amount of data on this subject before the problems are solved.

BANANA.

Leaf Spot (*Cercospora musæ*) and *Speckle*.—The investigation of the seasonal development of these two diseases is now practically complete. As was the case last year, speckle has shown itself to equal or even surpass leaf spot as an agent in leaf defoliation. In a second spraying trial it has been shown that a Bordeaux spray of 6—4—40 strength plus Agral as a spreader will control speckle and to a less extent leaf spot, but it is doubtful whether this method of control would be practicable in any but a few more favourably situated plantations. A simpler and more practical method of reducing loss from leaf disease would appear to be afforded by cloaking the bunches during the winter months. This prevents scalding, delays ripening, and allows the fruit an opportunity to fill satisfactorily. A preliminary experiment has demonstrated the advantage of this procedure and the work will be repeated on a larger scale.

Fruit Rots in Storage and Transport.—Arrangements have been completed whereby the Council for Scientific and Industrial Research will co-operate with this Branch in the squirter and black end investigations. The etiology of the banana fruit rots as they occur in the Southern markets will be investigated by Miss Hoette in Melbourne, and an officer has been seconded to this Department to assist with the necessary field and control work in Queensland.

Squirter (*Nigrospora sphærica*).—A comprehensive report on the etiology and contributing factors of this disease was published in the "Agricultural Journal" for August, 1933. Attention is now being paid to the control of the disease by chemical treatment of the fruit and modification of packing procedure. An experiment involving field and packing shed sanitation has been initiated on a South Coast plantation.

Black End.—A preliminary survey has been made of the organisms associated with black end in Queensland for comparison with those occurring in Melbourne, and a test of their relative pathogenicity is being carried out.

CITRUS.

Mr. Mandleson has continued his investigations to determine a suitable spraying programme for the control of black spot (*Phoma citricarpa*) and brown spot of the Emperor mandarin. By reason of the fact that Bordeaux mixture possesses certain disadvantages in that it assists scale infestation, attempts were made to find a substitute for this spray.

Black Spot.—Last season's experiments finalised towards the end of 1933 yielded much useful information. Under dry summer conditions it was shown that infection takes place progressively from flowering time until January and that Bordeaux mixture applied during blossoming and again in December will control the disease. This schedule will have to stand the test of a normal wet summer, and certain modifications may be found necessary. For this reason the present season's work consists in elaborating these experiments to determine the minimum number of sprays necessary and the optimum times for their application. Six different combinations are on trial at Mapleton, and as the season, in contrast to the previous two, has been a normal one, it should be possible to base definite recommendations on the result.

Brown Spot.—As scale infestation is of serious consequence at Howard, five different sprays were incorporated in last season's experiments in the district. These included two variations in the spreader for Bordeaux mixture, and three substitutes for this spray. Bordeaux proved the most efficient fungicide, but there is evidence that colloidal copper and the dual purpose spray designed the previous year and formed by combining Burgundy mixture with excess soda and soap will be useful in overcoming the disadvantages of Bordeaux mixture. Next season's experiments have been drawn up with the object of ascertaining how these sprays may best be utilised.

As there is some evidence that the nature of the stock influences susceptibility to brown spot, a plot has been laid down with specially budded trees to test out this theory. Some years will necessarily elapse before the results become available.

A further comparison of various fungicides in respect to scale infestation was made at Flaxton using ten combinations. As only a light attack of the insects occurred the results were not conclusive.

PINEAPPLE.

As previously Mr. Lewcock has devoted the whole of his attention to the diseases of this crop.

Wilt is still the major problem under investigation. Following on the discovery that an alkaline reaction was conducive to wilt development ten sulphur-treated field plots were laid down. These have shown that very definite beneficial results may be expected from increasing the acidity of fertile soils. However, it is necessary, in addition, to increase the organic matter content when this is low. Consequently nine field plots have been laid down in various districts with the object of ascertaining the best means of doing this.

Fruit diseases have been more than usually prevalent and necessitated increased attention.

Black Heart was very serious in the late winter crop. Laboratory and cold storage experiments indicate that this trouble may be the result of abnormal transpiration, and several field experiments based on this theory have been initiated to test out control measures.

Fruitlet Core Rot also caused heavy losses in cannery operations on the winter fruit. Investigations have largely confirmed Tryon's original theory—namely, that this disease is due to infection by a species of *Penicillium*. Entrance through the walls of the floral chamber is made possible principally by the activity of the pineapple mealy bug and a species of *Tarsonemus*. Experiments on the control of the trouble by means of dusts have been carried out at Glasshouse Mountains, but results will not be available until the fruit has been processed.

Yeasty Rot, which, together with soft rot (*Thielaviopsis paradoxa*), was responsible for a transport loss in summer fruit, was more prevalent than usual, and a leaflet was accordingly issued suggesting methods of control.

Marbled Fruit and Pink Disease.—These two bacterial diseases, originally described from Hawaii, were recorded from Queensland for the first time. The former is only of minor importance, but the latter may have serious consequences owing to the failure of the characteristic pink colour to appear until after the fruit has been canned and boiled.

PAPAW.

With the development of a Southern market for papaws it has been deemed advisable to give some attention to the diseases of this fruit. As a consequence the cause of most of the common troubles is now known. Two series of experiments have been laid down this season to test the value of various dusts, sprays and modifications of cultural operations for the control of these diseases.

Powdery Mildew (*Sphærotheca* sp.) is most serious during the late winter months and may produce a withering of the younger crown leaves and a grey scurf on the fruit.

Black Spot appears in late winter and extends into the spring and summer months. It is responsible for the dropping of flowers and young fruit, a black spot on mature fruit and a serious decay of the stem. The fungus *Ascochyta caricæ* is associated with the disease and has reproduced the disease when inoculated in pure culture.

Crown Rot.—This disease is of somewhat sporadic occurrence. A species of *Phytophthora* isolated from the lesions has been shown to be pathogenic by inoculation.

Transport Rots of the ripe fruit are usually associated with the presence of *A. caricæ* and *Gloeosporium* sp. There is, however, a form of brown scald which may have its origin in winter chilling.

Yellow Crinkle.—Attempts have been made to find the transmitting agent of this supposed virus disease. Inoculations by means of specimens of a Jassid and aphids, as well as the usual mechanical methods, have so far failed.

DECIDUOUS FRUITS.

During the past season Mr. Morwood has initiated experiments in connection with the apple, plum, and grape. As was to be expected from the preliminary nature of the investigations the results have been varied and further work will be necessary in order to finalise them. Mr. Jarvis materially assisted in supervising part of the necessary field work.

Apple Powdery Mildew.—Out of thirteen different treatments encouraging results were obtained during a year of heavy infection with a commercial brand of colloidal sulphur and a sulphur suspension made from lime sulphur and aluminium sulphate. There is justification for further work along these lines.

Apple Rosette has occurred spasmodically in the Stanthorpe district for some years. Last year it assumed more serious proportions, and consequently arrangements have been made to test the effect of three chemical treatments and two methods of cover cropping for the control of this disease.

Black Spot of Plum.—A zinc sulphate—lime spray tested against black spot yielded inconclusive results, and further variation in the nature of the spray and time of application will have to be made.

Anthracnose of Grape.—Last season proved a serious one for anthracnose development and it was found that the standard recommendations failed to control the disease under these conditions. A variation of these will be tried next season in the hope of obtaining better success.

FOREST PATHOLOGY.

The financing by the Forestry Sub-Department of the appointment of Mr. H. E. Young to investigate forestry problems has enabled this aspect of plant pathology to receive greatly increased attention. Two main problems present themselves for investigation.

Fused Needle.—This condition, which affects certain exotic species of Pinus, presents many conflicting aspects. Marked plots of badly-affected trees of these species are being kept under close observation with the object of obtaining further information on the disease. Experiments have been initiated to determine whether its presence may be attributed to a virus or certain physiological causes, as these are the two most likely explanations presenting themselves.

Mycorrhiza.—In the past difficulty has been experienced in establishing nursery stocks of exotic pines owing to the absence of the necessary mycorrhiza. A medium suitable for soil inoculation of the Mycorrhiza is being developed and it is hoped to facilitate operations by this means. The effect of correcting the soil reaction of the nursery beds to a pH favouring a rapid development of the fungus is being investigated. The question of whether the exotic pines in certain sections of Queensland are receiving the species of Mycorrhiza most suited to their development is also receiving attention.

Diplodia Pinea obtained from *Pinus radiata* has been inoculated to four other species of Pinus to find the host range of this organism.

MISCELLANEOUS.

Watermelon Wilt (*Fusarium* sp.).—By selfing the wilt-resistant varieties of watermelon received from Iowa, sufficient seed was obtained to supply small quantities to a number of growers normally suffering from this disease. As a result of these field trials Iowa King would appear to be a promising substitute for the common susceptible varieties, combining as it does resistance with characters meeting the demands of the market.

Irish Blight.—Weather conditions were responsible for severe outbreaks in both tomato and potato crops. A demonstration of the effect of spraying potatoes with Bordeaux mixture resulted in a 50 per cent. increase in yield.

Brown Patch.—A form of brown patch appeared on the blue couch (*Digitaria didactyla*) greens of the Brisbane Golf Course and was the subject of a short investigation. A fungus which, on account of its non-fruiting habit, remains so far unidentified, was isolated and typical symptoms reproduced by inoculating experimental plots of turf. Several methods of treatment, based on the fungal nature of the injury, are being tried out by the club interested.

COLLECTIONS.

Attention is being paid to the card indexing of literature, the spirit and herbarium collections, and other matters of laboratory routine as opportunity permits.

REPORT OF GOVERNMENT BOTANIST.

Enquiries received throughout the year extended over a wide range of subjects, dealing with various phases of plant life. Most of them dealt with plants sent in for identification and report as to their properties, useful or otherwise. Replies of more than individual interest were published monthly in the "Queensland Agricultural Journal."

By means of publicity given to the willingness of the branch to report on any specimens submitted, this service is now being widely availed of by farmers and pastoralists generally. The number of specimens submitted by correspondence during the year totalled 3,470. This is additional to those submitted in personal interviews of which no record was kept.

FIELD WORK.

(*a*) *General.*—For the purpose of general botanical collecting, visits were made to Glen Lamington from Roma, through Injune to the Carnarvon Ranges, from Ballandean to Wallangarra, and to Mount Edwards. Determinations of much of the material collected have not yet been finalised. So far as examined, however, the collections have revealed several species new to science, and a number of new records for the State. In June, a week was spent on Hayman Island labelling the trees and outstanding plants on the island for the information of tourists. During the year a large number of specimens was received from Day Dream Island, West Molle, and identified. The labelling of the trees on these islands is greatly appreciated by tourists and visitors generally.

(*b*) *Poisonous Plants.*—Visits were paid to Yandina and Kandanga for the purpose of inspecting paddocks where losses among dairy cattle had occurred. A visit by the Assistant Botanist to the Samford district was made, where similar losses had been reported. In this class of country, scrub undergrowth is mainly responsible, and as with such a mixture of plants it is rather difficult to single out one particular sort, farmers are advised of any of the shrubs or weeds containing harmful properties, and their eradication advised. Where the matter is deemed sufficiently important, publicity is given to the investigation through the local Press.

A visit was paid by the Assistant Botanist to the Cloncurry district from 10th May to 27th May in company with Mr. J. Maunder, veterinary officer, for the purpose of investigating mortalities of Southern rams imported into the Hughenden, Richmond, and Cloncurry districts during March and April. It was considered in all cases that the mortalities were fundamentally dietetic, the rams being allowed access to abundant growth of plants suspected as harmful to stock. The imported rams were from herbage country and would not feed on the dry Flinders or Mitchell Grass while any green grasses, herbs, or undershrubs were available. Such rams will gorge exclusively on feed of this nature, rendering themselves susceptible to any harmful properties the plants may possess. This would account for the immunity of local sheep. Among the plants suspected were Button Grass (*Dactyloctenium radulans*), several Cucurbitaceous plants—namely, *Cucumis trigonus, Cucumis myriocarpus,* and *Mukia scabrella;* two Malvaceous plants (*Sida corrugata* and *Malvastrum spicatum*) ; a Composite (*Wedelia asperrima*) was common in some places, and has the reputation locally of being a bad poisonous plant. Our knowledge of the poisonous properties of a lot of these plants in North-western Queensland is still very meagre.

(*c*) *Native Grasses and Fodders.*—During the year I paid two visits, in January and April respectively, to Bybera, the property of Dr. E. Hirschfeld, situated in the Goondiwindi district between Inglewood and Milmerran. This country is typical of much on the south-western Darling Downs. A general collection of the grasses and pasture plants on the property was made, and the experiments being carried out by Dr. Hirschfeld on Mitchell Grasses and Flinders Grasses were observed. Dr. Hirschfeld's experiments have shown very definitely that both Mitchell Grasses and Flinders Grasses will do exceptionally well in his district, and in no part of the State have I seen better specimens of these grasses than the cultivated ones on his property. The only point which arises is as to whether these grasses have the necessary carrying capacity for such closely settled country as much of the Darling Downs. One thing brought out in the experiments, however, was the very definite possibilities of Mitchell Grass under cultivation, also the possibilities of Flinders Grass as a hay and forage crop. Dr. Hirschfeld is continuing his experiments this year, especially with the idea of increasing the grain yield of the Mitchell Grasses. The improvement of Mitchell Grass by selection opens possibilities of quite a profitable line of investigation in the future.

During late March and early April a visit was paid by the Assistant Botanist to the Charleville district for the purpose of obtaining information from station owners and others as to the regrowth made by Mitchell Grasses this season, following several previous ones of drought. At the same time, notice was taken of plants associated with Mitchell Grasses. Mr. Francis was assisted in this work by the local Stock Inspector, Mr. E. J. Tannock, and a report was prepared for publication in the "Queensland Agricultural Journal." Suggestions for several experiments in the Charleville area have been recommended, and the question of the possibility of going on with this work will be considered during the coming season.

During the year the following questionnaire was circularised among Stock Inspectors, Land Commissioners, and some others:—

1. How have the Mitchell Grasses in your district responded during the present season?
2. Is there more than one kind of Mitchell and more than one kind of Flinders Grass growing in your district? If so, could you let us have specimens with notes on the relative value of each?

3. Are there any other grasses of outstanding value growing in your district and valuable on account of either palatability or drought resistance?
4. Are there any herbs of outstanding merit associated with the grasses?
5. This Department has co-operated with many graziers in Central and Western Queensland by naming and reporting on any grasses and herbage plants submitted. We would be pleased to receive any specimens you care to send. In sending more than one specimen, number each and retain a duplicate similarly numbered. Of grasses a whole stalk doubled up so as to fold comfortably in a piece of newspaper should be sent, as well as several seed-heads. Of herbs, trees, &c., a shoot a few inches long bearing flowers or seed-heads should be forwarded.

The response to this circular has been most gratifying, and a great mass of detail has been received. Specimens are still arriving, and the information received will now be arranged in some order for publication. Not only have we received information about the Mitchell and Flinders Grasses, but about other grasses, herbage, and weeds, and there is no question that the information received has increased very considerably our knowledge of the palatability and usefulness of many Western grasses and herbage plants.

Poisonous Plants.

During the year a number of specimens were received as suspected to be poisonous to stock. Notes on some of the more important ones received are offered herewith.

Family *Portulaceæ.*

Portulaca filifolia.—Writing in connection with the above, Mr. Telfer, a grazier in the Hughenden district, says that although he has been in the North for thirty years or more, he does not remember ever having seen this plant previously. At the present time kangaroos are numerous on the selection, but these animals do not appear to touch the plant, so even though it is not of a poisonous nature it is apparently not palatable to the kangaroo.

Family *Sapindaceæ.*

Heterodendron diversifolium.—This plant was forwarded by the District Inspector of Stock, Rockhampton, with the following report:—"Enclosed herewith specimen of shrub which is prevalent in the vicinity of Dalma and Alton Downs. It is believed to cause mortality in cattle, due to impaction of the stomach, death resulting in four to six weeks. Is more effective after rain, and there is a distinct external odour before death. The shrub —or bush—is not known by any particular name."

Heterodendron oleæfolium.—This plant was received from the neighbourhood of Mount Abundance under the name of Red Heart or Boonaree, with the report that sheep die very rapidly after drinking. The plant is strongly cyanophoric, and tests with the leaves have practically always given positive results. Several serious losses have occurred in New South Wales, but this is the first time that losses have definitely been attributed to the plant in Queensland, though it is frequently cut for fodder.

Family *Linaceæ.*

Linum usitatissimum and Polygonum convolvulus.—Received from Pittsworth farmer, with the following remarks:—"I am forwarding you under separate cover two samples of weeds which I suspect are poisonous to sheep. One very much resembles flax, the other is of the convolvulus family. I bought a bag of canary seed . . . for planting. I noticed a number of small black three-cornered seeds in the sample, which were too much of the same size as the canary seed to grade out, and decided they would not be injurious . . . I planted about 18 acres with canary, and when it was about 3 inches high I put 200 sheep on it to feed it off. In one night I lost fourteen good wethers; a peculiar feature of it being that the strongest and best conditioned sheep died. When the sheep died they immediately turned black, with a bloody froth oozing from the mouth. They seemed to have some form of paralysis and suffered much pain."

When tested by the Agricultural Chemist the Linum was found to be strongly cyanophoric.

Family *Leguminosæ.*

Aeschynomene indica.—Received from the Secretary, Proserpine Milk Suppliers' Association, with the following note:—"I am sending you some specimens of a weed or grass, which is growing in this district, and which, I have reason to believe, is causing the death of quite a number of valuable farm horses in this district. Quite recently a valuable mare, belonging to one of my members, died and was opened up. The only food which could be found in the intestines was this particular weed. The dry husks, which contain the seed, were broken up and the seeds had germinated and thrown out roots about an eighth of an inch long. The seeds had expanded to three times their natural size. The blood was very black and appeared to be congealed. The intestines were red and inflamed. The first symptoms shown were that she was very dopey, refused to eat or lick the favourite molasses. She would stand in the deepest part of a lagoon of water and lapped the water with her lips. The tongue appeared to be white and dry, breathed very quickly, and appeared to be feverish. She had a violent scouring, and in about three days she died. Another gelding owned by the same farmer recovered, but two other mares are now very sick and will probably die. This particular weed has been fed to some horses, but not with the pods on.

It has been reported that quite a number of farmers have lost valuable horses during the past six or eight months with symptoms similar to those described here.''

Crotalaria trifoliastrum.—Forwarded from the Homestead district. Believed to make goats very sick and at times kill them.

Family *Compositæ.*

Pterigeron odorus.—Received from the Crown Lands Ranger, Charters Towers, with the following remarks:—''Herewith I am sending you a plant handed to me by a cattle owner in the Ravenswood district to-day. This pastoralist informed me that he believes this plant to be poisonous; in fact, he most emphatically states that his stock are dying from eating it.''

Senecio amygdalifolius.—Received from North Tamborine, with the report that cattle were nipping off the tops of the bushes, and he suspected it of causing the death of a heifer.

Family *Asclepiadaceæ.*

Cryptostegia grandiflora.—Forwarded by the Land Agent, Barcaldine, with the following remarks:—''Under separate cover I am forwarding a plant which is suspected of having recently caused the death of a three-months-old calf.''

Hoya australis.—Received from Wondai as the reputed cause of deaths of cattle.

Family *Convolvulaceæ.*

Ipomœa calobra.—Received from a grazier in the Surat district, with the following notes:—''I am anxious to draw your attention to a poisonous plant that is causing considerable losses amongst sheep in this district. The plant is known locally as Weir Vine. My own losses in sheep for the last six years have averaged not less than 20 per cent. per annum, principally caused from eating this vine. I find after eleven years' experience that it is impossible to do any good on this country. Most of the other neighbours have had the same experience, but some do not care to expose the curse, on account of giving their place a bad name. When stock become bad with the vine effects you have great difficulty in removing them, and it is the only thing to do to save them.''

Family *Solanaceæ.*

Cestrum parqui.—Submitted by a grazier in the Caboonbah district, with the following remark:—''We have lost stock at different times, and they all die in great agony with symptoms of poisoning. This is the only thing we can find.''

Cestrum parqui.—Received from the Inspector of Stock, Ipswich, who reported:—''This shrub is growing prolifically under large scrub fig trees in a grazing paddock, Boonah line, and is suspected of being the cause of sudden deaths of a few head of cattle each year for the last four years. The plant is growing nowhere else in the paddock, which is cleared of all timber, but under the fig trees it completely covers the ground. The denser the overhead cover the thicker the shrub has grown.''

Nicotiana megalosiphon.—A correspondent at Springsure wrote:—''I have heard that the drop of nectar in a wild tobacco flower (*Nicotiana megalosiphon*) contains enough poison to kill a child. The plant is generally considered to be a poison weed, yet horses eat it readily and suffer no ill effect.''

Solanum aviculare.—Received from Tara, with the report that it came up in newly burnt-over scrub and was eaten by sheep with fatal results.

Solanum nigrum.—Submitted by the Stock Inspector, Gympie, from a Kilkivan property, as suspected of poisoning young grazing cattle. Symptoms were given as very pronounced staggers, lining of the stomach eaten away, and hæmorrhagic patches in the small intestine.

Family *Polygonaceæ.*

Polygonum minus.—Forwarded by the Inspector of Stock, Mackay, with the report that a dairyman of Silent Grove, Mackay, stated that when calves fed on separated milk ate the weed they suddenly became ill and died. On examination of the stomach contents the milk there was found to be turned to a cheese-like substance.

Family *Euphorbiaceæ.*

Euphorbia drummondii.—Received from the Longreach district with a report typical of that generally received from Central Queensland—namely, that the head and neck of affected sheep were very much swollen, and that when the swelling was pierced an amber-coloured fluid exuded.

Family *Labiatæ.*

Hyptis suaveolens.—Received from Kuranda, with the report that cattle were noticed eating a considerable lot of it, and that it might be the cause of poisoning.

Mentha satureioides.—Forwarded from Malanda, with the following remarks:—''I am enclosing a sample of a weed that is known locally as 'Pennyroyal,' and is said to make the cows slip their calves. I have a lot of this weed, and also have had two cows lose their calves at five months of late.''

Family *Illecebraceæ.*

Dysphania myriocephala.—Forwarded by the Inspector of Stock, Dalby, with the following notes:—''The weed was brought in from a property near Warra. The owner was driving thirty heifers on a district road between Daandine and Kogan, and had stopped at a gate where a quantity of this weed was growing. Some of the cattle ate the weed, and in about an hour's time ten of them were showing signs of intense pain. The owner bled the animals and administered carbonate of soda. Seven recovered and three died."

Family *Phytolaccaceæ.*

Rivina lævis.—Received from the Instructor in Fruit Culture, Cairns, with the following remarks:—"The enclosed specimen was collected in Cooktown, and is reputed to be very harmful to stock, inasmuch as, when cattle feed upon it, not only is the milk seriously tainted, but the flesh of the beast when killed is absolutely unsaleable, owing to the obnoxious odour it carries. This weed appears to have quite a fattening property, and provided the stock can be shut off from areas carrying this growth for a fortnight or three weeks prior to slaughter, no disagreeable effects are noticeable. But where the sale of milk is concerned, this particular weed is disastrous."

Family *Thymelæaceæ.*

Pimelea sanguinea.—Forwarded from Homestead district. Believed to make goats very sick and at times kill them.

Family *Ulmaceæ.*

Trema aspera.—Received from the Inspector of Stock, Bowen, with the report that a district grazier was having deaths among his cattle. Peach Poison Bush was found on ridges not far from where most of the cattle had died. Hundreds of small Peach Bushes were found growing and had been eaten by stock.

Family *Gramineæ.*

Eleusine indica.—Received from Pomona, April, 1934, with the report that young calves had been nipping off the tops of the leaves and had subsequently died, death being very rapid. Queensland-grown specimens of the grass whenever tested have given strong positive tests for the presence of a cyanophoric glucoside.

Panicum maximum.—Received from the Crown Lands Ranger, Charters Towers, with the report that a district grazier stated that he had given a bunch of this grass to three of his calves. Shortly after they commenced to gasp for breath, and half an hour later the three calves were stone dead. Another grazier stated that a thoroughbred colt by Winalot, to whom the evening before he gave a bunch of Guinea Grass, had died; he also stated that the symptoms were identical with those exhibited by the calves, the only difference being that the colt went blind and was in great pain until he died.

Family *Polypodiaceæ.*

Blechnum serrulata.—Received from the Inspector of Stock, Coolangatta, with the report that it was growing in a swamp at Elanora, and was regarded as poisoning his stock.

HERBARIUM.

There are still large quantities of undetermined material on hand from various collecting trips, but the specimens are gradually being classified as opportunity offers. Exchanges of botanical material have been continued with the Botanic Gardens, Singapore; Botanic Gardens, Buitenzorg, Dutch East Indies; the Royal Botanic Gardens, Kew, England; University of California; Botanic Gardens, New York; Herbarium L. H. Bailey, New York; and Botanic Gardens and Museum, Berlin.

A great deal of critical material, especially among the grasses, has been forwarded to the Royal Botanic Gardens, Kew, for determination, and for this thanks are especially due to Sir Arthur W. Hill and botanists at Kew, particularly Mr. C. E. Hubbard and Mr. V. S. Summerhayes, for assistance with difficult material. A number of specimens have been sent to the National Herbarium, Melbourne, for comparison with Mueller's types, and I have to thank Mr. F. J. Rae, the Victorian Government Botanist, and Mr. Audas, the Curator of the Herbarium, for much help received in this way. A number of specimens of cultivated plants has been kindly determined by the Arnold Arboretum, Boston, U.S.A. A large number of specimens has been sent to the Arnold Arboretum, Boston, in continuation of the botanical exploration of Queensland and the Western Pacific accomplished on their behalf.

BOTANICAL MUSEUM.

Additions to the Botanical Museum have not been very numerous. Specimens of dried fruits, barks, and woods have been added from time to time.

LECTURES.

Four radio lectures were delivered during the year from 4QG, the following subjects being dealt with:—Native Pastures, Indigenous Pasture Herbs, and Poisonous Plants (two lectures). Two lectures were delivered before the Royal Society of Queensland, one on native grasses and the other on recent botanical work in the Western Pacific. During a visit to Hayman Island three lectures were given before an audience of about fifty tourists, mainly from New South Wales and Victoria.

PUBLICATIONS.

The following publications have been issued during the year:—

C. T. White: *Acalypha compacta* (in Gardeners' Chronicle, London, 4th November, 1933); The Noogoora Burr (*Xanthium pungens*), a Weed Poisonous to Livestock (Q.A.J., Nov., 1933); Queensland Grasses (Q.A.J., Jan., 1934); Blue Weed or Paterson's Curse (*Echiium plantagineum*) (Q.A.J., March, 1934); Mist Flower (*Eupatorium riparium*) (Q.A.J., May, 1934).

C. T. White and *Rudd, J. A.*: *Cestrum parqui*, a Plant Poisonous to Livestock (Q.A.J., Aug., 1933).

In addition, I contributed on behalf of Professor U. Martelli, Italy, a paper to the Royal Society of Queensland, "Two Australian Pandani," which was published in volume XLV. of the Proceedings of the Society.

It is pleasing to note that Mr. C. E. Hubbard, of the Royal Botanic Gardens, Kew, England, has commenced to publish notes on some previously undescribed Queensland grasses. He has already described three new genera—namely, *Cleistochloa* and *Calyptochloa* in the "Icones Plantarum," and *Homopholis* in the "Kew Bulletin." One can regard this as a commencement of the publication of the results of Mr. Hubbard's work in the field and in the herbarium during 1929-30. Mr. Hubbard's visit to Queensland was of paramount importance, not only on account of the work he did himself, but on account of the stimulation he gave to younger workers in the field in Queensland.

C. T. WHITE, Government Botanist.

REPORT OF THE AGRICULTURAL CHEMIST.

The analytical work carried out in the laboratory was greatly increased during this year, as shown by table below, and good work was performed by the whole of the staff:—

—	1931-32.	1932-33.	1933-34.
Butters	1,629	708	833
Buttermilks	..	..	68
Cheese	65	118	116
Dipping fluids	389	356	407
Egg pulps	..	..	3
Fertilizers	112	75	104
Fruits, fresh	46	104	181
Fruits, canned, jams, and preserves	28	15	8
Limestones, lime, &c. ..	15	18	27
Milks and other milk products	22	50	17
Miscellaneous	175	110	88
Nuts, Australian, Tung, &c.	..	10	11
Pest destroyers	165	139	258
Salts and stock licks ..	52	71	52
Sandalwoods	..	..	3
Seeds, grasses, plants, &c. ..	309	426	284
Grasses and plants for hydrocyanic acid	..	..	175
Soils and subsoils ..	234	176	131
Soil moisture determinations	2,400	2,496	2,496
Soil, nitrate, pH, carbon, and mechanical analyses	138	686	1,055
Stock foods	174	41	125
Tobaccos	16	62	19
Viscera and toxicological specimens	216	177	199
Waters	152	167	100
Wheats	211	41	37
Totals	6,548	6,046	6,797

There was also a very great increase in the glassware that was tested:—

SOILS.

The chemical analyses of the soil samples submitted are given in Table I., and the mechanical analyses and physical properties in Table II. The soils marked "T" are those upon which tobacco crops are grown. Analyses of some soil samples from the Dawson irrigation area appear in these tables.

Besides the 131 usual analyses of agricultural soils, considerable soil investigational work has been done in the way of partial analysis for purpose of ascertaining if there is any correlation with particular soil condition and the physiological and pathological conditions of plants. In this connection soil nitrate and carbon content of soils have been determined for the Cotton Branch, the pH of pineapple soils for the Pathological Branch, and for Forestry soils, which data may possibly be mentioned in other reports. For these determinations 1,055 soils were examined and are detailed below:—

Soil nitrates	558
Soil carbon	68
Soil pH (pineapple soils)	243
Soil pH (mostly Forestry)	131
Soil cultural solutions pH	6
Soil (partial analysis), humus, phosphoric acid and replaceable potash ..	42
Soils supposed to be injuriously affected with salt or disinfectants	7

Soil samples were submitted for analysis by the Entomological Branch in connection with White Grub infestation in North Queensland.

GRASSES, SHRUBS, &c.

The analyses of various grasses, shrubs, seeds, &c., forwarded for analysis by private people are given in Table II.

GLASSWARE TESTED, &c.

—	Received.	Approved.	Condemned.	Broken.	Per Cent. Condemned.
Cream bottles	3,862	3,816	23	23	0·6
Milk bottles	1,691	1,622	45	24	2·6
Pipettes	854	807	40	7	4·7
Thermometers	1,015	887	123	5	12·1
Totals	7,422	7,132	231	59	3·1

Prepared 187 pints iodine solution for field testing of cattle dips, 339 pints N/10 alkali, and 11½ pints phenolphthalein solution.

DIPPING FLUID.

Four hundred and seven samples of dipping fluid were analysed, and 148 (or 36·3 per cent. of the total number) were found to contain from 7·5 to 8·5 lb. of arsenic per 400 gallons; the recognised standard strength for dipping fluids is 8 lb. of arsenic per 400 gallons. Thirty-five (or 8·6 per cent.) were found to be more or less oxidised.

VISCERA.

There was an increased number of samples of viscera and toxicological samples forwarded for analysis this year—namely, 199—and of these thirty were found to contain arsenic, three lead, and five gave reactions indicating presence of alkaloids.

The statements made that stock feed upon the plants submitted are made by the senders, but time will be required in order to note the digestibility and effect upon stock of at least some of these plants before any definite statement can be made as to whether such plants are suitable or otherwise as stock feed.

Again, some of the samples forwarded contained a large amount of harsh woody stems, which stems it is considered stock would not eat; in such cases the leaves and finer twigs were analysed separately. Some of these plants may be eaten to some extent by stock because other more digestible plant food material is not available, but though these plants may contain considerable amounts of protein it would be incorrect to assume that they are suitable food stuffs.

The fact that young grass growth is of a much higher feed value than that of older growth has not yet been sufficiently recognised, and the analysis of a sample forwarded should not be compared with analysis of some other grass of older growth.

As the moisture content when growing of all the various grasses, &c., was not known, the analysis in this table are given in terms of per cent. of the dry material. Taking for purpose of illustration two analyses No. 3423 (Summer Grass) and No. 2387 (Water Hyacinth leaves) the moisture content of these in the green fresh state being known. The moisture of the Summer Grass was 76·5 per cent., and the dry material 23·5 per cent., therefore, if 100 parts of dry material of this grass contains, as stated in Table II., 8·7 parts of protein, 23·5 parts of dry material will contain 2·0 parts of protein, and this 2·0 per cent. protein is what is contained in this grass in its green stage. Similarly the green leaves of Water Hyacinth contain 90 per cent. moisture and 10 per cent. dry material, therefore, if 100 parts dry material contain 24·6 parts of protein, the 10 parts of dry material present in the green leaves of this particular sample of Water Hyacinth will contain only 2·46 parts of protein.

Of interest are the analyses Nos. 5842 A and B of the whole seed pods and seeds of *Acacia Farnesiana* (locally called Mimosa), as Mr. W. C. Miller, Coreena, Barcaldine, intends to experiment with them in sheep feeding with chaff to ascertain if they could take the place of sheep nuts.

Citrus Maturity Tests.

In connection with examination of citrus fruit in connection with maturity standards, 108 samples were sent in by growers and analysed—viz., 59 oranges (different varieties), 21 navel oranges, and 28 mandarins.

Somewhat full analysis upon these samples has been made, and as samples have been forwarded from different districts interesting information is becoming available, but the whole matter is very complex, as many anomalies are found to exist. Samples of this season's crop are still being forwarded.

Cereals.

Four samples of wheat from the State Wheat Board and twenty-six samples of different (cross breeds) wheats from Mr. R. E. Soutter, Wheat Experimentalist, were analysed, and the results will be of use in connection with the scheme for wheat research which is being inaugurated throughout the Commonwealth.

Analyses of samples of imported barley seed were made before being planted, and the harvested barley again analysed. The protein and carbohydrate content was found to be somewhat unfavourably affected, possibly owing to unfavourable climatic conditions. Further harvestings of these barleys will be analysed.

Sorghums, Legumes, &c.

One hundred and seventy-five plants were examined for determination of hydrocyanic acid, a large number being sorghums and legumes grown at Lawnton, the results of which appear in the report of Mr. F. F. Coleman.

Miscellaneous.

Locally manufactured casein is appearing on the market, and five samples were forwarded for analysis from the Forestry Department, and three of these samples compared favourably with American specifications of casein for glue purposes.

One sample of Queensland egg-pulp and two samples of Chinese egg-pulp were forwarded by the Queensland Egg Board for examination, and it was found that these samples, as far as chemical composition was concerned, were practically the same.

Occupying the position of chairman upon the following, Veterinary Medicines Board, Pig Nutritional Committee, and Experimentation Committee, a considerable amount of time has been devoted to meetings of the above-mentioned bodies.

The Veterinary Medicines Board appointed under *"The Veterinary Medicines Act of* 1933" has received for consideration 274 samples, of which 187 samples have been registered, 30 have been rejected, and 57 require to have amendments made to labels, &c.

The Pig Nutritional Committee has been concerned with the pig feeding with meat meal experiments at the Animal Health Station. Thirty-two pigs in this experiment have been forwarded to the Abattoir for slaughter, and reports upon the condition and suitability of the pigs for export as porkers are being obtained from the Abattoir. Photographs are taken of the carcass and cuts form the carcass for purpose of recording both the appearance of the carcass, and also the distribution of fat and meat in the carcass. Arrangements have been made to receive reports from the English buyers as to the suitability of the exported porkers for the English markets.

The Experimentation Committee has been formed for the purpose of conducting work arising from the scheme arranged by the Minister for Agriculture and Stock for collaboration of Departmental officers with Local Producers' Associations in different localities in any outstanding experiments desired of a varietal, cultural, or fertilizing nature.

Proposals for experiments have been received, a number from the Local Producers' Associations, and some experiments are already in progress, but these are not sufficiently advanced to be reported on.

E. H. GURNEY, Agricultural Chemist.

Table I.—ANALYSES OF QUEENSLAND SOILS.

Laboratory No.	Locality.	Description of Soils.	Total Elements in the Soil, Calculated on Soil Dried at 100° C.									Available Plant Food, Soluble in 1 per cent. Citric Acid.				Total Elements. Lb. per Acre, 12″ Deep.				Available Plant Food, Soluble in 1 per cent. Citric Acid. Lb. per Acre, 12″ Deep.			Soil Acidity.			Remarks.
							Soluble in Hydrochloric Acid. Sp. Gr. 1·115.																PH.			
			Humus.	Combined Water and other Organic Matter	Chlorine.	Nitrogen.	Phosphoric Acid.	Lime	Magnesia.	Potash.	Total Insoluble Matter.	Phosphoric Acid.	Lime.	Magnesia.	Potash.	Nitrogen.	Phosphoric Acid.	Lime.	Potash.	Phosphoric Acid.	Lime.	Potash.	Water Suspension 1 : 2	$\frac{N}{1}$ KCl. Suspension 1 : 2	Truog Test.	
			%	%	%	%	%	%	%	%	%	%	%	%	%											
	COOK—																									
3656	Cooktown, Endeavour River	br. s.l. ..	1·37	3·75	·005	·125	·08	·38	·35	·52	83·3	·0040	·1658	·0301	·0072	4,616	3,002	14,260	19,139	150	6,136	266	5·85	3·73	V. sl.	River flat scrub.
3657	Ditto	r. s.l. ..	·21	2·48	·003	·034	·02	·07	·14	·36	88·2	·0004	·0317	·0516	·0082	1,405	827	2,813	14,879	16	1,298	335	7·39	5·53	V. sl.	Forest.
3658	Ditto	lt. choc. cl.	1·00	11·53	·005	·110	·09	·16	·16	·01	44·4	·0006	·0469	·0472	·0034	3,131	2,480	4,650	310	19	1,336	96	5·17	4·84	Sl.	Forest.
3665	Mareeba .. T.	lt. gr. s.s. ..	·18	1·16	·009	·028	·14	·06	·05	·04	96·6	·0005	·0300	·0080	·0060	1,279	6,295	2,745	1,827	23	1,370	274	6·17	6·01	Sl.	Forest.
3661	Mareeba–Emerald T. Creek	br. s.s. ..	·70	2·05	·002	·050	·03	·14	·08	·07	92·3	·0052	·0732	·0306	·0043	2,080	1,248	5,824	2,912	216	3,236	179	7·00	6·48	V. sl.	Fertilised. Curing troubles.
3662	Ditto (6 in.–12 in.)	lt. r. br. s.s.	·37	2·24	·005	·017	·02	·13	·18	·11	93·5	·0010	·0520	..	·0090	685	805	4,548	4,427	40	2,094	362	6·84	..	Nil	
3663	Ditto (12 in.–18 in)	r. br. s. cl.	·30	4·04	·003	·017	·02	·15	·03	·10	86·2	·0006	·0450	·0090	·0100	628	751	5,629	3,759	23	1,652	375	6·62	..	V. sl.	
3669	Ditto	lt. br. s. ..	·37	1·58	·002	·028	·01	·08	·04	·08	95·1	·0003	·0394	·0178	·0078	1,226	438	3,502	3,502	13	1,716	341	7·61	7·27	V. sl.	Virgin.
3670	Ditto	r. s. ..	·07	2·76	·003	·022	·01	·07	·03	·12	90·5	·0002	·0248	·0192	·0053	885	402	2,817	4,870	8	990	209	6·51	5·81	V. sl.	Virgin.
3702	Queensland Forest Service, Wongabel Nursery	lt. br. cl. l.	2·58	9·74	·004	·220	·17	·65	·20	·10	60·6	·0040	·3020	·0310	·0130	6,530	5,048	19,245	2,839	126	8,960	378	6·84	6·70	V. sl.	(1)
3703	Ditto (subsoil) ..	br. cl. l. ..	3·11	11·00	·003	·302	·14	·77	·69	·11	59·1	·0050	·3060	·0490	·0140	9,594	4,458	24,325	3,426	171	9,730	645	7·02	6·92	Nil	(2)
3704	Ditto	lt. br. s. cl.	1·66	5·14	·003	·132	·07	·27	·14	·04	79·1	·0020	·1460	·0690	·0040	4,806	2,607	9,686	1,490	74	5,365	108	6·89	6·14	V. sl.	(3)
3715	Atherton (6 in.) ..	r. br. l. ..	3·23	15·49	·007	·271	·21	·11	·09	·01	33·2	·0020	·0390	·0120	·0090	7,926	6,146	3,073	279	61	1,137	276	4·97	..	Str.	Por. 32–33 Temporary impoverishment after white grub infestation.
3716	Ditto (6 in.–12 in.)	r. br. l. ..	2·37	13·97	·004	·188	·18	·11	·07	·01	34·6	·0020	·0100	·0040	·0046	5,452	5,178	3,046	305	61	456	122	4·78	..	Str.	Por. 32–33
3717	Ditto (6 in.) ..	r. br. l. ..	2·97	16·85	·004	·324	·25	·11	·07	·01	34·4	·0040	·0530	·0210	·0030	9,212	7,178	2,992	299	120	1,495	89	5·15	..	Str.	Por. 32–33
3718	Ditto (6 in.–12 in.)	r. br. l. ..	2·43	14·45	·005	·221	·17	·07	·19	·01	33·8	·0023	·0120	·0020	·0020	7,114	5,499	2,410	344	76	385	76	4·94	..	Str.	Por. 32–33
3719	Ditto (6 in.) ..	r. br. l. ..	3·53	17·65	·007	·424	·29	·29	·35	·01	32·8	·0018	·1186	·0390	·0016	12,889	8,938	8,593	344	55	3,620	41	5·68	..	Str.	Por. 291
3720	Ditto (6 in.–12 in.)	r. br. l. ..	2·36	15·15	·007	·268	·28	·28	·12	·01	34·0	·0012	·0543	·0867	·0036	7,928	8,434	3,711	309	37	1,606	108	6·13	..	Str.	Por. 291
3721	Ditto (6 in.) ..	r. br. l. ..	3·79	17·31	·004	·374	·29	·29	·23	·01	31·5	·0051	·0546	·0162	·0033	11,897	9,374	5,048	360	162	1,740	104	5·18	..	Str.	Por. 291
3722	Ditto (6 in.–12 in.)	r. br. l. ..	2·44	15·45	·004	·204	·28	·28	·09	·01	32·5	·0022	·0140	·0034	·0018	6,454	9,014	1,082	360	68	448	58	4·60	..	Str.	Por. 291
	NORTH KENNEDY—																									
3645	Bowen, Upper Don T.	gr. s.s. ..	·45	2·05	·004	·036	·02	1·24	·62	·14	88·8	·0040	·0680	·0310	·0060	1,468	816	50,170	5,712	163	2,773	244	6·12	5·60	Sl.	
..	(Subsoil of No. 3645)	br. s.s. ..	·18	3·16	·004	·029	·02	1·25	·86	·23	83·0	·0010	·0740	·0200	·0010	1,020	728	44,455	8,016	36	2,624	36	6·75	5·46	Sl.	
3646	Ditto .. T.	gr. s.s. ..	·39	1·58	·005	·049	·05	1·23	·68	·12	89·6	·0210	·0780	·0170	·0140	1,634	1,944	47,444	4,666	816	2,994	544	6·31	6·18	Sl.	
..	(Subsoil of No. 3646)	lt. br. s.s. ..	·20	1·22	·004	·017	·05	1·24	·48	·14	89·2	·0220	·0570	·0280	·0180	698	2,058	50,500	5,748	903	2,341	739	6·83	6·23	Sl.	
3677	Townsville, Hermit Park	lt. br. cl. l.	1·90	6·40	·005	·158	·10	·82	·50	·44	78·9	·0180	·2570	·0710	·0170	5,050	3,345	26,090	14,050	569	8,228	535	6·00	5·23	Med.	
3757	Home Hill	gr. s.s. ..	·86	3·11	·007	·120	·24	·71	·27	·25	89·3	·1620	·1930	·0290	·0080	4,334	8,444	25,700	8,808	5,837	6,938	294	7·13	6·91	Nil.	Bowling green.
	SOUTH KENNEDY—																									
3691	Eungella, parish of Crediton	choc. l. ..	4·55	22·09	·029	·227	1·06	·13	·14	·026	24·2	·0270	·0170	·0140	·0210	5,970	28,020	3,300	609	700	457	563	5·04	4·67	V. str.	Lands Administration Board.
..	(Subsoil of No. 3691)	choc. l. ..	8·50	12·25	·039	·536	1·19	·15	·15	·033	26·0	·0300	·0390	·0150	·0060	14,635	32,570	3,994	922	830	1,079	154	5·04	4·53	V. str.	

	Dawson Irrigation—																									
3725	Portion 127c ..	gr. cl. ..	2·06	9·22	·003	·168	·13	·97	·21	·21	70·4	·0100	·3600	·0530	·0140	5,208	3,982	30,190	6,634	299	11,180	45	7·01	6·16	V. sl.	Irrigation and Water Supply Commission.
3726	Portion 1110c ..	gr. cl. ..	1·19	5·79	·004	·069	·09	·45	·19	·26	81·8	·0130	·1580	·0470	·0270	2,277	3,060	14,620	8,499	407	5,168	714	6·58	5·51	Med.	
3727	Portion 1110c ..	gr. cl. ..	1·90	4·47	·005	·110	·11	·66	·26	·22	82·6	·0390	·2630	·0270	·0200	3,575	3,709	21,560	7,081	1,281	8,565	640	7·77	6·71	V. sl.	
3728	Portion 90c ..	gr. cl. ..	1·12	7·37	·003	·107	·12	1·12	·85	·27	73·7	·0318	·3252	·0693	·0185	3,680	4,008	38,262	9,110	1,089	11,142	634	8·23	5·66	Nil	
3729	Portion 94c ..	lt. gr. cl. ..	·91	5·81	·007	·106	·07	·65	·48	·26	79·0	·0156	·1524	·0467	·0127	3,680	2,551	22,591	9,110	543	5,306	441	6·53	5·85	V. sl.	
3730	Portion 87c ..	lt. gr. cl. ..	1·28	8·45	·004	·137	·15	1·03	·88	·24	70·4	·0270	·2190	·0639	·0167	4,666	5,064	35,084	8,320	918	7,454	568	6·88	5·85	Sl.	
3731	Portion 88c ..	lt. gr. cl. ..	1·41	8·37	·003	·148	·18	1·10	·81	·18	72·1	·0444	·2668	·0745	·0201	4,607	5,594	34,220	5,594	1,382	8,292	625	6·99	6·02	V. sl.	
	PORT CURTIS—																									
3633	Queensland Forest Service, Reserve 95	dk. gr. l. ..	1·73	8·13	·015	·219	·17	1·01	·64	·28	74·6	·0280	·3830	·0850	·0310	5,382	4,120	24,990	6,866	686	9,420	769	7·79	6·97	Nil	(4) Chlorosis, Hoop Pine, Kalpowar Nursery.
3634	Ditto	dk. gr. l. ..	1·84	8·48	·014	·203	·16	·58	·56	·26	74·8	·0150	·1770	·0690	·0160	5,282	4,286	15,220	6,568	400	4,626	428	5·86	5·12	Med.	(5) Normal plants.
3641	Bundaberg .. T.	gr. br. s.s...	1·21	2·73	·004	·068	·02	·20	·07	·02	92·0	·0070	·1284	·0245	·0101	2,715	810	8,104	810	280	5,150	405	6·11	5·31	Sl.	No disease.
3642	Ditto .. T.	br. s.s. ..	1·01	3·33	·004	·045	·03	·24	·06	·03	91·8	·0101	·0803	·0085	·0039	1,750	1,166	9,332	1,166	389	3,091	152	5·80	4·99	Sl.	Badly diseased.
3643	Ditto .. T.	gr. s.s. ..	1·47	3·54	·004	·068	·004	·11	·06	·01	92·6	·0010	·0306	·0099	0022	2,605	156	4,277	389	39	1,174	85	4·80	3·82	Med.	Disease at end of season
3644	Ditto .. T.	gr. s.s. ..	1·46	3·30	·004	·102	·01	·16	·07	·02	92·6	·0025	·0452	·0107	·0059	4,065	402	6,440	805	101	1,803	233	5·04	4·24	Med.	Disease considerable.
3648	Rockhampton, The Caves	gr. cl. ..	1·33	9·50	·008	·212	·05	2·67	·87	·16	70·3	·0003	·3481	·0936	·0064	6,701	1,659	84,600	4,976	10	11,017	202	7·78	7·03	Nil	Irrigated 20 in. in season.
3649	Ditto	gr. cl. ..	1·95	11·04	·010	·273	·03	2·70	·91	·05	69·3	·0002	·3595	·0818	·0054	8,018	880	79,220	1,591	6	10,562	159	8·04	7·41	Nil	Irrigated 20 in.. in season.
3674	Cotton Research Farm, Biloela, J.7/8	dk. gr. cl. l.	2·33	5·55	·007	·195	·16	1·18	·91	·50	76·8	·0332	·1456	·0485	·0369	5,665	4,568	34,110	14,616	962	4,221	1,069	6·61	6·39	V. sl.	Composite of 15 samples.
3675	Ditto J. 11/12..	dk. gr. cl. l.	2·67	6·95	·006	·218	·16	1·25	·99	·64	73·0	·0381	·2759	·0103	·0287	6,080	4,405	34,950	17,913	1,063	7,694	801	6·68	6·16	V. sl.	Composite of 15 samples.
3676	Ditto J. 13/14..	dk. gr. cl. l.	2·25	7·13	·006	·195	·16	1·37	·46	·62	73·5	·0356	·2929	·0202	·0235	5,232	4,202	36,768	16,857	956	7,859	679	6·64	5·96	V. sl.	Composite of 15 samples.
3714	Yeppoon, Woodbury	dk. gr. cl. l.	3·33	9·23	·004	·282	·69	1·29	·54	·08	50·0	·0120	·6000	·2530	·0150	7,754	19,200	35,455	2,306	317	16,520	403	8·24	8·20	Nil	(6) Leaf chlorisis bananas.
..	(Subsoil of No. 3714)	choc. l. ..	1·73	7·75	·010	·152	·61	·35	·32	·06	51·8	·0050	·1070	·0610	·0190	4,764	19,250	11,095	1,957	163	5,350	620	7·29	7·27	Nil	(7)
	BURNETT—																									
3635	Gayndah	lt. br. s.s...	·77	1·65	·001	·045	·08	·50	·34	·28	89·9	·0220	·0120	·017	·005	1,737	3,089	19,306	10,810	849	463	193	6·69	5·88	Sl.	
3700	Mulgeldie, Monto ..	gr. cl. ..	3·33	11·55	·01	·390	·18	1·47	·72	·24	64·8	·0261	·5143	·0797	·0138	10,903	5,178	41,116	6,700	728	14,375	387	7·57	6·95	Nil	New cultivation.
3701	Ditto	gr. cl. ..	3·32	11·14	·005	·347	·17	1·37	·75	·21	64·9	·0253	·4625	·0860	·0097	9,629	4,830	38,034	5,966	700	12,829	269	7·64	6·67	Nil	Old cultivation.
3697	Queensland Forest Service, Como Nursery	gr. s.s. ..	1·66	1·54	·004	·085	·01	·06	·20	·01	94·2	·0016	·0153	·0257	·0076	3,267	389	2,333	389	62	587	292	4·78	3·68	Str.	
3698	Ditto	lt. choc. l...	4·40	15·10	·006	·309	·06	·07	·16	·01	45·5	·0006	·0084	·0222	·0045	8,412	1,568	1,876	313	16	225	122	4·91	4·24	Str.	
3699	Ditto	lt. br. f. s.l.	2·98	6·85	·005	·162	·02	·07	·09	·01	76·2	·0011	·0168	·0114	·0049	5,166	658	2,303	329	36	536	155	4·94	4·25	Str.	
3707	Murgon Tableland ..	dk. br. l. ..	2·96	12·66	·003	·395	·08	·46	·09	·08	52·9	·0020	·0358	·0920	·0170	9,996	1,922	11,535	1,922	63	9,062	439	7·88	7·40	Nil	
3732	Wooroolin, West Kingaroy	choc. l. ..	2·56	13·38	·004	·269	·14	·43	·08	·01	40·9	·0030	·2980	·0280	·0190	8,068	4,065	13,135	3,130	94	8,944	500	6·50	5·66	Sl.	Grass area good.
..	(Subsoil of No. 3732)	choc. l. ..	1·59	12·75	·004	·186	·10	·33	·15	·07	41·6	·0010	·0175	·030	·0150	5,402	3,019	9,660	2,113	30	5,070	425	5·81	4·75	Med.	
3733	Wooroolin, West Kingaroy	choc. l. ..	1·69	13·00	·007	·174	·10	·12	·10	·08	40·1	·0020	·0270	·0200	·0160	5,116	3,046	3,350	2,437	61	789	457	4·59	4·06	V. str	Grass area bad.
..	(Subsoil of No. 3733)	choc. l. ..	1·08	11·91	·005	·110	·07	·09	·07	·03	39·3	·0010	·0350	·0170	·0140	3,315	2,189	2,815	938	31	1,032	125	4·62	3·95	V. str	
	WIDE BAY—																									
3651	Gympie	br. s.l. ..	·97	6·73	·003	·203	·54	1·15	·28	·42	79·1	·2170	·3710	·0190	·0070	5,844	15,565	33,200	12,065	6,258	10,662	206	6·71	6·21	Sl.	Bowling green.
3655	Pialba	dk. gr. l. ..	3·07	8·39	·009	·295	·20	3·87	·55	·13	75·6	·0340	·2810	·0210	·0060	9,255	6,148	121,350	4,207	1,077	8,834	194	7·05	..	Med.	Bowling green.
3652	Maryborough ..	..	9·82	..	..	·386	·04	·70	·10	·07	76·1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Used for top dressing.

Total Manganese Mn_3O_4—(1) ·18, (2) ·35, (3) ·24, (4) ·17, (5) ·19, (6) ·36, (7) ·21.

Table I.—ANALYSES OF QUEENSLAND SOILS—*continued.*

Laboratory No.	Locality.	Description of Soils.	TOTAL ELEMENTS IN THE SOIL, CALCULATED ON SOIL DRIED AT 100° C.									Available Plant Food, Soluble in 1 per cent. Citric Acid.				Total Elements, Lb. per Acre, 12″ Deep				Available Plant Food, Soluble in 1 per cent. Citric Acid. Lb. per Acre, 12″ Deep.			SOIL ACIDITY.			Remarks.
							Soluble in Hydrochloric Acid, Sp. Gr. 1·115.																Ph.			
			Humus.	Combined Water and other Organic Matter.	Chlorine.	Nitrogen.	Phosphoric Acid.	Lime.	Magnesia.	Potash.	Total Insoluble Matter.	Phosphoric Acid.	Lime.	Magnesia.	Potash.	Nitrogen.	Phosphoric Acid.	Lime.	Potash.	Phosphoric Acid.	Lime.	Potash.	Water Suspension 1:2	$\frac{N}{1}$ KCl. Suspension 1:2	Truog Test.	
			%	%	%	%	%	%	%	%	%	%	%	%	%											
	WIDE BAY—*continued.*																									
3679	Queensland Forest Service, Imbil	choc. f.s.l. ..	2·14	12·08	·003	·186	·13	·44	·39	·19	54·4	·0004	·2982	·1688	·0016	5,110	3,523	12,041	5,286	12	8,190	44	6·47	..	Sl.	(8) Samples from seed beds in use for 16 years.
3680	Ditto	choc. f.s.l. ..	2·36	11·52	·003	·190	·13	·39	·35	·21	53·6	·0003	·1920	·1726	·0023	5,160	3,456	10,664	5,765	9	5,214	63	6·38	4·86	Sl.	(9)
3681	Ditto	choc. f.s.l. ..	1·01	12·43	·003	·220	·13	·48	·43	·19	54·1	·0003	·1439	·0965	·0046	6,080	3,524	13,214	5,286	9	3,979	126	6·49	5·43	Sl.	(10)
3682	Ditto	choc. f.s.l. ..	1·98	11·80	·002	·179	·13	·38	·32	·12	53·6	·0002	·0776	·0516	·0012	4,980	3,557	10,670	3,260	6	2,158	33	6·49	..	Sl.	(11)
3659	Woondum	yl. br. cl. ..	1·02	5·46	·003	·103	·03	·09	·31	·66	76·0	·0014	·0355	·1584	·0055	3,103	922	2,765	19,971	42	1,066	166	6·23	4·60	Sl.	Forest uncultivated.
3660	Ditto	br. cl. l. ..	1·48	6·05	·003	·183	·07	·11	·20	·48	79·6	·0038	·0636	·0621	·0137	5,208	2,037	3,201	13,674	107	1,810	390	6·27	5·06	Sl.	Forest uncultivated.
3705	Queensland Forest Service, Imbil	dk. br. l. ..	2·46	10·84	·003	·164	·05	·66	1·89	·21	59·4	·0002	·2080	·0660	·0020	4,312	1,427	17,415	5,423	6	5,480	57	6·99	4·13	Sl.	(12) Plants showed chlorosis.
3706	Ditto	dk. br. l. ..	3·09	13·45	·008	·248	·04	·43	1·45	·17	52·5	·0002	·1030	·0360	·0030	6,050	1,366	10,392	4,264	5	2,505	79	6·53	5·60	Sl.	(13) Normal plants.
3724	Bundaberg	dk. gr. s.s.	1·39	3·71	·003	·120	·37	·73	·19	·09	87·0	·2060	·2779	·0300	·0340	4,204	12,825	25,650	3,205	7,232	9,725	142	6·31	5·98	Vsl.	Bowling green.
3758	Maryborough ..	gr. br. silt l.	·76	3·77	·003	·091	·11	·55	·23	·42	84·9	·0220	·0110	·0260	·0050	3,108	3,799	18,650	14,160	759	380	276	5·97	5·33	Sl.	Narrow leaf bananas
	DARLING DOWNS—																									
3653	Laidley	gr. cl. l. ..	1·42	5·22	·007	·121	·06	·24	·19	·23	83·3	·0040	·0840	·0430	·0030	4,107	2,028	8,354	7,658	139	2,854	104	5·85	4·98	Med.	Total acidity (Jones) = 44·5 cwt. Mineral acidity (Hopkins) = ·79 cwt.
3673	Milmerran	gr. br. cl. l.	1·25	6·59	·002	·178	·04	·67	·31	·20	78·2	·0040	·3320	·0210	·0260	5,940	1,381	22,515	6,560	138	11,050	863	8·40	7·38	Nil	
3678	Warwick, Rosenthal	gr. br. s. ..	1·32	3·55	·002	·119	·05	·58	·18	·10	90·6	·0045	·3684	·0532	·0145	4,782	2,026	23,097	4,052	182	14,748	580	7·08	..	Nil	
3683	Warwick, Canning Downs	gr. s.s. ..	·90	1·56	·005	·062	·02	·11	·02	·03	93·3	·0003	·0412	·0123	·0121	2,445	788	4,337	1,183	12	1,613	477	6·18	5·24	Sl.	Pasture experiments.
3684	Ditto	gr. br. s.s. ..	·47	1·35	·005	·151	·02	·11	·03	·06	94·5	·0006	·0409	·0155	·0054	6,118	810	4,457	2,431	24	1,657	219	6·10	5·55	Sl.	
3685	Ditto	bl. l. ..	2·48	9·37	·003	·353	·21	1·06	·88	·11	66·4	·0103	·2369	·0934	·0062	10,252	6,624	30,922	3,470	325	7,472	196	6·13	4·86	Sl.	
3723	Toowoomba West ..	br. l. ..	3·49	10·44	·004	·291	·47	·86	·31	·10	57·9	·0640	·4090	·1010	·0170	9,162	14,715	27,090	3,060	2,007	12,880	535	7·15	6·37	Nil	Bowling green.
..	(Subsoil of No. 3723)	br. cl. soil ..	1·84	13·40	·006	·159	·22	·42	·25	·11	42·9	·0020	·1980	·0480	·0110	4,886	6,795	12,945	3,559	64	6,115	323	7·39	6·77	Nil	
	MORETON—																									
3647	Brisbane, White's Hill	wh. s. silt ..	·98	3·88	·030	·091	·04	·10	·16	·57	89·0	·0010	·0410	·0180	·0100	3,231	1,436	3,589	20,100	35	1,472	358	5·16	4·27	Str.	
3638	Brisbane, Ithaca No. 1	gr. s.l. ..	2·29	4·35	·003	·177	·19	28	·27	·34	85·7	·0749	·0867	·0155	·0219	5,756	6,168	9,252	10,963	2,436	2,820	713	5·46	4·77	Sl.	Bowling green.
3639	Brisbane, Ithaca No. 2	gr. br. s.l. ..	1·50	4·07	·038	·149	·19	·44	·34	·37	88·1	·1073	·1445	·0108	·0232	4,846	6,148	14,467	11,934	3,490	4,698	756	5·42	5·19	Sl.	
..	(Subsoil of No. 3639)	gr. br. s.l. ..	1·64	7·64	·028	·122	·20	·36	·26	·27	85·2	·1101	·1523	·0127	·0160	3,960	6,364	11,667	8,838	3,567	4,967	520	5·63	5·45	Sl.	
3636	Nudgee, Lander's Pocket	br. l. ..	4·39	10·64	·012	·423	·20	·80	·71	·52	64·0	·0110	·2070	·0490	·0080	11,440	5,335	21,636	13,930	296	5,602	207	5·66	4·96	Med.	
3637	(Soil (9 in.–12 in.) of No. 3636)	br. l. ..	4·51	9·72	·099	·332	·21	·36	·56	·65	67·0	·0210	·0540	·0280	·0130	7,612	5,166	8,701	15,500	489	1,278	299	4·42	3·83	Str.	Total acidity (Jones) = 19·3 cwt. Mineral acidity (Hopkins) = 76·9 cwt.
3650	Tambourine Mt. ..	choc. f.s.l. ..	4·09	17·23	·002	·364	·18	·43	·21	·05	33·2	·0028	·1561	·0265	·0099	9,116	4,528	10,866	1,258	69	3,906	247	5·54	4·76	Med.	
3640	Southport, Loder's Creek	gr. l. ..	1·82	4·98	·008	·161	·04	·03	·17	·10	87·5	·0105	·1512	·0308	·0096	5,678	1,447	1,085	3,617	369	5,328	340	5·62	5·08	V. sl.	

3654	Springbrook.. ..	br. s.l. ..	7·01	16·86	·010	·550	·12	·14	·07	·03	51·5	·0070	·0180	·0040	·0060	12,910	2,747	3,296	885	165	412	137	4·60	4·11	V.str.	Total acidity = 201 cwt. (Jones), Mineral acidity = 60 cwt. (Hopkins).
3664	Springbrook, Echo Valley	choc. l. ..	2·57	15·84	·001	·255	·06	·22	·06	·08	43·6	·0067	·0930	·0100	·0040	6,545	1,536	5,530	2,151	18	2,397	92	5·82	5·20	Sl.	
3666	Queensland Forest Service, Benarkin	..	2·96	8·08	..	2·30	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5·72	..	..	Sawdust cover. Total carbon = 2·73 per cent.
3667	Ditto	..	3·12	7·06	..	·252	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5·48	..	..	Scrub soil cover. Total carbon = 2·83 per cent.
3668	Beaudesert, Telemon	gr. br. l. ..	3·81	9·77	·003	·367	·31	2·53	·33	·07	63·8	·0580	·3640	·0070	·0130	10,505	8,756	72,240	1,876	1,657	10,415	375	6·70	6·22	Sl.	
3671	Brisbane, Parliament House	gr. s.l. ..	1·28	3·26	·003	·132	·02	·11	·09	·12	92·1	·0030	·0888	·0342	·0073	4,806	745	4,098	4,470	108	3,233	264	5·65	4·83	Med.	
3672	Yandina, Coolum ..	gr. s.s. ..	·91	1·97	·007	·049	·01	·08	·05	·07	95·3	·0020	·0110	·0040	·0040	1,919	392	3,133	2,744	78	4,308	157	4·54	4·10	Str.	
3686	Forest Reserve 257..	r. cl. ..	4·64	10·96	·007	·266	·05	·63	·17	·07	55·8	·0010	·2380	·0641	·0218	6,989	1,387	16,640	1,942	28	6,602	574	6·26	..	Med.	Surveyor-General.
..	(Subsoil of No. 3686)	r. cl. ..	1·47	9·52	·009	·067	·02	·20	·15	·04	57·4	·0001	·0751	·0368	·0064	2,168	647	6,472	1,294	3	2,320	207	6·02	..	Med.	
3687	Forest Reserve 283..	r. cl. l. ..	9·83	14·59	·017	·582	·30	·63	·37	·05	33·8	·0033	·2457	·0758	·0447	12,730	7,180	15,078	1,196	79	5,313	967	5·91	5·02	Med.	
3688	Queensland Forest Service, Yarraman	choc. l. ..	4·09	12·20	..	·421	..	..	..	..	..	·0019	·3105	·0529	·0253	13,052	..	..	..	59	9,627	764	7·18	..	..	(14) Sawdust cover Total carbon = 2·57 per cent.
3689	Ditto	choc. l. ..	3·15	11·30	..	3·62	..	..	..	..	..	·0024	·3080	·0832	·0145	11,320	..	..	..	75	9,632	454	7·39	..	..	(15) Scrubsoil cover. Total carbon, = 2·36 per cent.
3690	Nudgee	lt. br. s.l. ..	1·91	2·50	·003	·135	·13	·06	·04	·05	91·9	·0710	·0400	·0270	·0130	5,102	4,914	2,268	1,390	2,683	1,512	492	4·39	3·41	V. sl.	Good pineapple soil.
3693	Goodna	lt. gr. sand	1·35	1·39	·002	·050	·005	·04	·02	·03	97·9	·0005	·0135	·0104	·0022	2,107	211	1,686	1,264	21	565	93	3·59	3·02	V. str	Total acidity = 100 cwt. (Jones), Mineral acidity = 16 cwt. (Hopkins).
3694	Ditto	gr. sand ..	3·02	1·99	·009	·107	·004	·03	·05	·01	95·5	·0002	·0050	·0081	·0004	4,238	160	1,199	400	8	200	16	3·25	2·30	V.str.	Total acididy = 286 cwt. (Jones), Mineral acidity = 72 cwt. (Hopkins).
3695	Manly	lt. choc. cl.	1·79	9·52	·005	·178	·09	·33	·30	·02	64·1	·0046	·1157	·1102	·0091	5,390	2,888	9,948	642	138	3,498	276	5·59	4·79	Med.	
3710	West Burleigh ..	br. cl. l. ..	2·90	14·06	·004	·276	·10	·34	·35	·03	55·9	·0091	·1270	·0518	·0139	7,724	4,497	9,500	919	254	3,552	389	5·49	..	Str.	
3711	Ditto	lt. br. cl. ..	2·62	14·36	·008	·247	·14	·33	·36	·03	47·7	·0026	·1128	·0644	·0167	6,263	3,448	8,331	862	66	2,864	425	5·16	..	Str.	
3712	Canungra	gr. cl. l. ..	1·92	5·96	·002	·170	·28	·84	·85	·13	75·0	·0252	·1906	·0494	·0108	4,437	7,295	21,881	3,343	660	4,988	283	6·18	..	Sl.	
3713	Nudgee	gr. s. l. ..	2·60	10·33	·006	·310	·14	·10	·21	·05	83·9	·0610	·0310	·0190	·0050	9,938	4,616	3,290	1,645	1,942	987	165	4·35	3·67	Med.	Pineapples (50 years) dressed with offal from brewery and ginneries.
3734	Timber Reserve 362, parish of Numinbah	dk. gr. cl...	4·59	15·65	·005	·603	·33	2·07	·83	·01	59·5	·0266	·4277	·1266	·0095	14,343	7,856	49,170	291	631	10,166	227	6·56	5·98	V. sl.	Proposed prison farm.
3735	Ditto	lt. gr. cl. ..	1·84	11·14	·005	·245	·30	·52	1·17	·01	57·5	·0037	·1165	·1681	·0019	6,811	8,226	14,478	329	102	4,626	53	5·50	4·85	Med.	
3736	Ditto	lt. gr. cl. ..	3·01	10·81	·005	·355	·23	1·08	·97	·02	63·5	·0087	·2620	·1014	·0109	10,496	6,910	31,915	658	257	2,739	322	5·96	5·43	Sl.	
3742	Ditto	choc. br. l.	4·27	16·40	·002	·624	·46	2·02	1·23	·05	56·7	·0305	·4839	·0438	·0149	16,272	11,856	52,760	1,185	794	12,613	383	6·54	5·69	Nil	
3740	Coochin Creek ..	lt. br. s.l. ..	·73	3·52	·015	·070	·02	·13	·08	·03	93·0	·0014	·0617	·0538	·0061	2,514	751	4,503	1,129	49	2,206	218	5·50	5·02	Sl.	
3741	Ditto	r. br. s. l. ..	1·66	6·32	·007	·105	·03	·14	·18	·01	78·5	·0011	·0545	·0683	·0060	3,306	1,044	4,525	348	35	1,709	188	5·80	5·27	Sl.	
3756	Queensland Forest Service, Yarraman	choc. l. ..	1·83	16·26	·002	·442	·31	·74	·14	·07	39·5	·0020	·3670	·0230	·0120	11,480	8,072	19,324	2,018	58	9,512	291	8·20	7·78	Nil	
	MITCHELL—																									
3696	Blackall State School	gr. cl. l. ..	·41	4·85	·011	·059	·03	1·52	·70	·27	81·4	·0013	·6229	·0623	·0016	1,964	1,052	50,507	9,120	42	20,627	53	8·78	7·51	Nil	
3737	Portion 1, parish of Gillespie	lt. gr. cl. ..	·37	8·49	·002	·091	·05	2·20	1·51	·30	68·1	·0064	·7288	·0337	·0050	2,902	1,727	70,100	9,670	204	23,205	159	8·24	6·53	Nil	Land Administration
3738	Ditto	gr. br. cl. ..	·51	7·60	·003	·108	·05	1·70	1·21	·31	72·3	·0050	·7181	·0562	·0051	3,406	1,686	53,620	9,780	159	22,661	162	8·34	6·77	Nil	
3739	Ditto	gr. br. cl. ..	·50	6·58	·002	·082	·08	1·72	1·23	·31	74·0	·0090	·7099	·0838	·0077	2,630	2,698	54,970	9,780	287	22,661	246	8·27	7·00	Nil	

Total Manganese Mn_3O_4—(8) 3·68, (9) 3·55, (10) 3·73, (11) 3·51, (12) ·38, (13) ·31.

Soluble in 1 per cent. Citric Acid, Mn_3O_4—(14) ·1424, (15) ·2160.

Table II.—SOME QUEENSLAND SOILS (PHYSICAL PROPERTIES AND MECHANICAL ANALYSES).

Laboratory No.	Locality.	Description of Soils.	Ph. Water Suspension 1 : 2.	Properties of the Soil.								Mechanical Analyses.							Chemical Analyses.		
				Apparent Specific Gravity.	Weight of Soil per Acre, 12" deep.	Capacity for Water.	Absorbed Weight of Water, 12" deep.	Capillarity (in Inches). After 3 Hours.	Capillarity (in Inches). After 6 Hours.	Capillarity (in Inches). After 24 Hours.	Capillarity (in Inches). After 48 Hours.	Fine Gravel. 1–2 m.m.	Coarse Sand. ·2–1 m.m.	Fine Sand. ·04–·2 m.m.	Silt. ·01–·04 m.m.	Fine Silt. ·002–·01 m.m.	Clay. Less than ·002 m.m.	Organic Matter and Water.	Humus.	Other Organic Matter and Combined Water.	Nitrogen.
					Tons.	%	Tons.					%	%	%	%	%	%	%	%	%	%
	Cook–																				
3665	Fumar, *via* Mareeba .. T	lt. gr. s.s. ..	6·17	1·68	2,039	15·0	306	11	14	21	24½	10·1	40·1	38·0	4·0	3·8	1·1	2·34	0·18	1·16	·028
3702	Wongabel Forest Nursery ..	lt. br. cl. l. ..	6·84	1·16	1,409	46·0	648	7½	8	9	9¾	4·1	9·0	26·0	19·3	22·6	7·8	12·32	2·58	9·74	·220
3703	Wongabel Forest Nursery ..	br. cl. l. ..	7·02	1·26	1,530	46·0	704	6	6½	7¾	8½	2·8	11·9	27·7	15·0	20·0	7·1	14·1	3·11	11·00	·302
3704	Wongabel Forest Nursery ..	lt. br. s. cl. ..	6·89	1·37	1,663	32·0	532	8½	10¼	14¼	16¼	8·9	26·1	21·4	12·0	16·5	6·3	6·8	1·66	5·14	·132
3661	Mareeba—Emerald Creek T	br. s.s.	7·00	1·53	1,857	19·0	353	9½	11¼	13½	15	6·8	41·7	37·4	3·5	3·9	4·3	2·8	·70	2·05	·050
3750	Dimbulah, por. 57, par. Borneo (6 in.)	wh. s.s. ..	..	..	..	..	..	..	..	..	..	11·3	73·3	10·8	1·7	1·4	1·0	·9	..	..	..
..	Dimbulah, por. 57, par. Borneo (6 in.–12 n.)	wh. s.s. ..	..	..	..	..	..	..	..	..	..	15·7	68·8	10·3	·8	·6	1·9	·9	..	..	..
3751	Dimbulah, por. 57, par. Borneo (6 in.)	br. s.s.	..	..	..	..	..	..	..	..	..	5·2	72·3	15·7	2·6	1·9	1·2	1·3	..	..	..
..	Dimbulah, por. 57, par. Borneo (6 in.–12 in.)	br. s.s.	..	..	..	..	..	..	..	..	..	6·4	69·8	16·4	2·4	3·1	·7	1·2	..	..	..
3752	Dimbulah, por. 26, par. Masterson (6 in.)	br. s.	..	..	..	..	..	..	..	..	..	3·4	29·9	41·8	11·7	9·7	·7	2·6	..	..	..
..	Dimbulah, por. 26, par. Masterson (6 in.–12 in.)	br. s.	..	..	..	..	..	..	..	..	..	3·3	31·1	40·6	9·9	10·6	·9	2·0	..	..	..
3753	Dimbulah, por. 33, par. Masterson (6 in.)	br. s.	..	..	..	..	..	..	..	..	..	18·1	51·2	18·7	5·1	4·3	1·3	1·1	..	..	..
..	Dimbulah, por. 33, par. Masterson (6 in.–12 in.)	br. s.	..	..	..	..	..	..	..	..	..	14·2	51·9	19·1	6·3	3·9	1·5	·9	..	..	..
3754	Dimbulah, por. 33, par. Masterson (6 in.)	br. s.	..	..	..	..	..	..	..	..	..	39·2	46·6	7·2	2·9	2·2	·8	1·0	..	..	..
..	Dimbulah, por. 33, par. Masterson (6 in.–12 in.)	br. s.	..	..	..	..	..	..	..	..	..	33·9	45·5	11·5	2·7	3·0	·9	·9	..	..	..
3755	Dimbulah, por. 36, par. Masterson (6 in.)	br. s.	..	..	..	..	..	..	..	..	..	35·7	42·6	12·0	3·1	3·0	2·1	1·2	..	..	..
..	Dimbulah, por. 36, par. Masterson (6 in.–12 in.)	br. s.	..	..	..	..	..	..	..	..	..	25·6	48·0	13·5	14·5	14·0	2·8	1·3	..	..	..
	North Kennedy—																				
3645	Bowen—Upper Don .. T	gr. s.s.	6·12	1·50	1,821	26·0	473	12½	18	20¾	23¾	1·0	23·6	57·6	6·7	5·5	2·2	2·5	·45	2·05	·036
..	(Subsoil of No. 3645)	br. s.s.	6·75	1·34	1,627	34·0	553	10¼	12¼	19¾	22¾	Nil	19·6	55·1	10·0	7·8	4·0	3·3	·18	3·16	·029
3646	Bowen—Upper Don .. T	gr. s.s.	6·31	1·43	1,736	28·0	486	12¼	14¼	19¾	22¼	·8	21·6	62·9	4·9	4·6	2·7	2·0	·39	1·58	·042
..	(Subsoil of No. 3646)	lt. br. s.s. ..	6·83	1·31	1,333	26·0	477	15	17	24	27	Nil	22·3	63·9	6·3	3·6	1·7	1·4	·20	1·22	·017
	Leichhardt— (Dawson Irrigation Scheme)																				
3725	Por. 127c	gr. cl.	7·01	1·22	1,481	52·0	770	3¼	4	7¾	9½	Nil	1·6	31·0	21·3	27·5	7·0	11·1	2·06	9·22	·168
..	(Subsoil of No. 3725)	gr. cl.	..	..	..	..	..	..	..	..	..	·4	1·0	21·0	24·5	35·4	6·9	10·5	..	..	..
3726	Por. 1110c	gr. cl.	6·58	1·25	1,518	48·0	729	3¾	4¾	8½	10¼	Nil	1·3	32·9	23·5	28·9	5·5	7·0	1·19	5·79	·069
..	(Subsoil of No. 3726)	gr. cl.	..	..	..	..	..	..	..	..	..	Nil	1·5	27·0	22·1	32·6	8·9	6·4	..	..	..
3727	Por. 1110c	gr. cl.	7·77	1·24	1,506	46·0	693	4½	5½	10½	13¼	Nil	1·5	40·3	23·7	21·8	5·8	6·6	1·90	4·67	·110
..	(Subsoil of No. 3727)	gr. cl.	..	..	..	..	..	..	..	..	..	Nil	1·7	34·9	25·1	23·5	7·5	6·3	..	..	..
3728	Por. 90c	gr. cl.	8·23	1·34	1,627	29·0	472	3	3¾	6	7¾	Nil	·3	20·9	6·4	55·7	10·6	8·5	1·12	7·37	·107

..	(Subsoil of No. 3729)	lt. gr. cl. ..	5·98	..	..	..	..	..	..	..	..	·1	·8	14·7	15·7	39·6	22·0	7·1	..	..	..
3730	Por. 87B	lt. gr. cl. ..	6·88	1·33	1,615	27·0	436	1	1¼	2¼	2¾	Nil	0·2	14·1	25·1	37·6	12·2	9·7	1·28	8·45	·137
..	(Subsoil of No. 3730)	lt. gr. cl. ..	7·09	..	..	..	..	..	..	..	..	Nil	·1	7·0	24·2	40·6	20·2	9·4	..	..	..
3731	Por. 88B	lt. gr. cl. ..	6·99	1·21	1,469	31·0	455	4¾	5¾	8¾	9¾	Nil	·1	13·8	24·9	40·1	8·8	9·8	1·41	8·37	·148
..	(Subsoil of No. 3731)	lt. gr. cl. ..	5·56	..	..	..	..	..	..	..	..	Nil	·1	9·6	25·3	39·7	18·4	8·7	..	..	..
	PORT CURTIS—																				
3674	Callide Cotton Research Farm ..	dk. gr. cl. l. ..	6·61	1·12	1,360	43·0	585	6¼	7¼	8¾	10⅓	·3	2·6	20·8	28·4	31·0	8·3	7·9	2·33	5·55	·195
3675	Callide Cotton Research Farm ..	dk. gr. cl. l. ..	6·68	1·08	1,311	46·0	603	4¾	7	9	10½	·2	·3	19·0	30·3	28·9	9·3	9·6	2·67	6·95	·218
3676	Callide Cotton Research Farm ..	dk. gr. cl. l. ..	6·64	1·04	1,263	59·0	745	5¼	6¼	8½	9¾	·2	·9	21·3	29·3	29·4	7·5	9·4	2·25	7·13	·195
	BURNETT—																				
3700	Monto, Mulgeldie	gr. cl.	7·57	1·12	1,360	49·0	666	4¾	5¼	7¼	8¼	·7	1·6	24·1	20·6	26·3	8·9	14·9	3·33	11·55	·390
3701	Monto, Mulgeldie	gr. cl.	7·64	1·11	1,348	43·0	580	4¾	5¼	7	8	·7	1·1	26·3	17·6	28·8	11·8	14·5	3·32	11·14	·347
3697	Como Forest Nursery	gr. s.s.	4·78	1·43	1,736	21·0	365	3¾	4½	6¼	7¼	2·5	37·7	39·7	4·3	6·0	3·6	3·2	1·66	1·54	·085
3698	Como Forest Nursery	lt. choc. l. ..	4·91	1·15	1,396	42·0	586	3	3¼	4¼	5	·9	9·5	15·8	4·8	14·5	32·1	19·5	4·40	15·10	·309
3699	Como Forest Nursery	lt. br. f.s.l. ..	4·94	1·21	1,469	41·0	602	4½	4¾	4¾	4¾	2·8	33·7	26·0	7·4	8·8	9·3	9·8	2·98	6·85	·162
	WIDE BAY—																				
3679	Imbil Forest Nursery	choc. f.s.l. ..	6·47	1·08	1,311	44·0	577	13¼	16½	21¼	23	·3	3·8	26·4	23·7	21·2	12·3	14·2	2·14	12·08	·186
3680	Imbil Forest Nursery	choc. f.s.l. ..	6·38	1·06	1,287	44·0	566	10½	14½	19½	21	·1	3·9	26·6	26·5	18·9	10·4	13·9	2·36	11·52	·190
3681	Imbil Forest Nursery	choc. f.s.l. ..	6·49	1·08	1,311	43·0	564	11¾	17	20¾	22¼	·1	2·8	29·1	22·1	21·3	11·8	13·4	1·01	12·43	·220
3682	Imbil Forest Nursery	choc. f.s.l. ..	6·49	1·09	1,323	43·0	569	11¼	16¼	20½	23¾	·2	4·1	28·0	23·2	20·4	9·7	13·8	1·98	11·80	·179
3705	Imbil Forest Nursery	dk. br. l. ..	6·99	1·05	1,275	46·0	587	12½	14¼	19½	22¼	·8	6·3	34·3	21·1	18·3	6·3	13·3	2·46	10·84	·164
3706	Imbil Forest Nursery	dk. br. l. ..	6·53	·95	1,190	58·0	690	13	14¼	16½	17¾	·2	2·2	33·4	18·9	19·5	8·2	16·5	3·09	13·45	·248
	MORETON—																				
3647	White's Hill, Brisbane	wh. s. silt ..	5·16	1·32	1,603	28·0	449	2	2¼	4½	5¾	2·9	22·1	31·5	12·2	19·4	7·9	4·9	·98	3·88	·091
3636	Nudgee, Brisbane	br. l.	5·66	1·09	1,323	52·0	688	3¾	5	8	9¾	Nil	3·44	26·2	11·1	33·5	11·5	15·0	4·38	10·64	·423
3638	Ithaca, Brisbane	gr. s.l.	5·46	1·26	1,530	30·0	459	5½	8½	9¼	10½	9·6	35·0	21·9	5·6	13·3	5·3	6·6	2·29	4·35	·177
3639	Ithaca, Brisbane	gr. br. s.l. ..	5·42	1·33	1,615	18·0	291	5	7¼	8¾	12	2·6	45·1	25·2	5·4	9·4	3·4	5·6	1·50	4·07	·149
..	Ithaca, Brisbane	gr. br. s.l. ..	5·68	1·30	1,578	18·0	284	5	7½	8¼	11	3·1	42·2	23·7	4·3	9·4	3·1	9·3	1·64	7·64	·122
3666	Benarkin Forest Nursery	..	5·72	..	..	..	..	..	..	..	..	2·1	13·8	21·4	8·6	36·0	5·3	11·8	2·96	8·08	·230
3667	Benarkin Forest Nursery	..	5·48	..	..	..	..	..	..	..	..	2·2	10·8	20·8	21·7	25·6	6·9	10·6	3·12	7·06	·252
3671	Parliament House, Brisbane ..	br. s.s.	5·65	1·37	1,663	28·0	466	9	10¾	14½	16	2·3	35·9	33·9	9·2	9·3	3·2	4·5	1·28	3·26	·132
3686	Forest Reserve 257, parish of of Googa	r. cl. s.	6·26	1·02	1,238	48·0	594	9½	11¾	17¼	20½	·9	1·2	19·5	19·6	25·2	23·8	15·6	4·64	10·96	·266
3687	Forest Reserve 283	r. cl. l.	5·91	·88	1,068	62·0	662	10¾	13	18¾	22	3·4	4·8	28·4	18·3	16·5	3·2	24·5	9·83	14·59	·582
3688	Yarraman Forest Nursery ..	choc. l.	7·18	..	..	..	..	..	..	..	..	5·7	7·5	20·8	17·2	19·0	12·0	16·3	4·09	12·20	·421
3689	Yarraman Forest Nursery ..	choc. l.	7·39	..	..	..	..	..	..	..	..	5·8	8·3	20·0	19·8	14·8	16·5	14·5	3·15	11·30	·362
3690	Nudgee, Brisbane	lt. br. s.s. ..	4·39	1·39	1,688	32·0	540	7¾	9	11¼	12½	14·1	49·0	23·4	1·1	4·8	1·9	4·4	1·91	2·50	·135
3734	Timber Reserve 362, parish of Numinbah	dk. gr. cl. ..	6·56	1·07	1,299	21·0	273	3½	4	6	7	2·4	4·4	18·5	22·7	24·9	9·6	20·2	4·59	15·65	·603
3735	Timber Reserve 362, parish of Numinbah	lt. gr. cl. ..	5·50	1·21	1,469	33·0	485	5	5½	7¼	8	1·4	8·3	14·1	14·8	30·3	19·9	12·9	1·84	11·14	·245
3736	Timber Reserve 362, parish of Numinbah	lt. gr. cl. ..	5·96	1·29	1,469	41·0	602	4½	5½	8	9	1·3	10·6	18·6	22·0	25·6	7·6	13·8	3·01	10·81	·355

Table III.—ANALYSES OF PASTURE GRASSES, ROUGHAGE, HERBAGE, AND SHRUBS.

Number of Analysis.	Month Cut.	Name of Grass, Herbage, or Shrub.	Local Name.	District.	Analysis of Water-free Material.							Remarks. (Chiefly made by senders.)
					Crude Protein.	Crude Fat.	Carbohydrates.	Crude Fibre.	Crude Ash.	Lime, CaO.	Phosphoric Acid, P_2O_5.	
					%	%	%	%	%	%	%	
121	July	*Atriplex semivaccata*	Saltbush	Roma (S.F.)	19·9	·7	43·0	23·0	13·4	1·942	·749	Chlorine, 1·080 per cent.
360	June–July	*Brachiaria piligera*	Bush Hay	Mackinlay	15·2	1·0	41·7	27·3	14·8	·655	·531	Submitted as *B. distachya*. Green and fresh-looking, with agreeable aroma. In full seed, about 15 in. high.
614	August	*Iseilema Mitchellii*	Flinders Grass	Nelia	7·3	1·4	37·0	25·3	29·0	·489	·285	This grass had several falls of rain on it after it had dried off, and was the main supply after the Mitchell grass shoots formed by the rain were eaten off. The sample consisted of leafy fragments without seed heads.
623	August	..	Forage	Eulo (P.)	7·0	1·7	35·8	24·5	31·0	1·022	·154	Forwarded as a representative sample of the material eaten by sheep (August, 1933). Consists of roughage and leaves of trees.
732	August	..	Java Cane	Eumundi (K.)	5·9	·8	51·7	31·5	10·1	·322	·450	Height, 10 ft. 2 in.
733	August	..	Q.L.D. Cane	Eumundi (K.)	3·1	·4	70·7	22·9	2·9	·148	·125	Height, 7 ft. 8 in.
734	August	..	China Cane	Eumundi (K.)	3·1	·6	65·4	25·4	5·5	·146	·164	Height, 10ft.
948	August	..	Cow Cane	Fernvale (H.)	1·9	·6	66·9	26·4	4·2	·153	·263	Height, 8 ft.
1197	September	*Notelæa microcarpa*	A Shrub	Goondiwindi (W.)	8·6	3·6	63·2	20·6	4·0	1·540	·180	The only time the cattle eat this shrub is in spring, when it is in flower, and they do well on it then. Sample consisted of leaves and small twigs.
1378	October	..	Roughage	Eulo (F.P.)	3·1	·8	51·2	33·3	11·6	·173	·073	Dry grass roughage from which all seed had fallen; 18 to 20 in. high.
1631	..	*Stylosanthes mucronata* (Seeds)	Wild or Townsville Lucerne	Mackay	31·9	2·9	27·0	30·1	8·1	1·116	1·090	Analysis of seed only.
1914	October	*Echinochloa crus-galli*	Wild Millet or Swamp Millet	Nudgee	10·7	1·3	42·8	31·3	13·9	·290	·410	Green grass about 3 ft. high; in seed. A native grass.
1966	..	..	Ensilage	Dakabin	8·7	1·3	45·6	36·5	7·9	·396	·210	
2519	December	*Axonopus compressus*	Carpet Grass	Millaa Millaa	10·0	1·1	49·3	31·7	7·9	·966	·394	Green when cut and in full seed, but had become somewhat mouldy in transit. Short leafy stems, about 8 in. long.
2021	November	*Paspalidium cæspitosum*	Brigalow Grass	Goondiwindi (B.)	16·8	·9	40·8	27·4	14·1	·332	·299	About 18 in. high; in green seed.

2386	December	..	Water Hyacinth (Bulbs)	Ingham (V.E.)	14·2	·6	30·9	21·1	33·2	1·555	1·564	Bulbs slimy and decomposed.
2387	December	..	Water Hyacinth (Leaves)	Ingham (V.E.)	24·6	·7	43·0	19·2	12·5	1·600	1·204	Leaves dry when received.
2255	November	*Paspalidium cæspitosum*	Brigalow Grass	Goondiwindi (B.)	21·0	1·0	39·8	25·3	12·9	·344	·390	
3423	February	*Digitaria marginata*	Summer Grass	South Brisbane	8·7	1·1	45·9	33·2	11·1	·483	·651	Green with a few seed heads. Fairly leafy. Average height, 21 in.
2860	December	*Paspalum sp.*	Paspalum	Innisfail	13·9	1·4	38·4	30·1	16·2	·572	·527	Mouldy in transit. Young and leafy without seed; 10 to 13 in. high. Grown on alluvial soil. About three months old.
2861	December	*Paspalum sp.*	Paspalum	Innisfail	10·1	·8	44·6	34·8	9·7	·533	·409	Mouldy in transit. Young and leafy with a very few seed heads 2 ft. to 2 ft. 9 in. high. Grown on alluvial soil amongst maize. About three months old.
2944	December (Planted 14th August, 1933)	*Lespedeza sericia*	..	Rockhampton	16·3	1·4	45·1	29·8	7·4	1·487	·688	Very leafy plant somewhat resembling lucerne 10 in. high. Made very rapid growth during the first ten weeks after sowing, then suddenly stopped. On 20th December some of the plants commenced to die. On 28th December the flowering was fairly general. The area cut for analysis appeared to be dead. Planted 14th August; harvested 16th December, 1933.
2945	December (Planted 14th August, 1933)	*Alycarpus rugesus*	..	Rockhampton	25·4	2·4	41·8	18·3	12·1	2·915	·662	Very leafy green shrubby plant. In flower. Leaves and small twigs only analysed.
2946	December (Planted 8th August, 1933)	*Digitaria Pentzii*	Woolly Finger Grass	Rockhampton	10·4	1·2	42·0	35·7	10·7	·443	·475	Coarse straw-like grass, in full seed; 2 ft. 6 in. high.
2947	December (Planted, 14th August, 1933)	*Urochloa pululans*	..	Rockhampton	9·4	·6	42·3	35·2	12·5	·395	·516	Green, fairly coarse, leafy grass; 2 ft. 6 in. high.
2948	December	*Phaseolus triloleus*	..	Rockhampton	16·1	1·2	45·2	25·8	11·7	2·643	·766	Green, creeping plant, with mature seed pods.
2949	December	*Iseilema Mitchellii*	Red Flinders Grass	Rockhampton (A.D.)	4·2	1·1	51·7	32·4	10·6	·321	·452	This grass, brought from the West by sheep during a drought, has now a wide distribution in the district. 24 to 30 in. high. In full seed and very leafy.
3883	February	*Panicum maximum*	Guinea Grass	Gatton	9·8	·8	34·6	41·1	13·7	·533	·390	Six months old. Grown from roots Green with fairly coarse stalks, but with most seed fallen from the seed heads. 7 ft. 6 in. high.
3884	February	*Panicum maximum*	Guinea Grass	Gatton	15·1	·8	31·5	32·9	19·7	·714	·756	About 14 days old. Young, green, and leafy, but sweated in transit. No seed heads. 18 in. high. H.C.N., nil.

Table III.—ANALYSES OF PASTURE GRASSES, ROUGHAGE, HERBAGE, AND SHRUBS.—*continued.*

Number of Analysis.	Month Cut.	Name of Grass, Herbage, or Shrub.	Local Name.	District.	Analysis of Water-free Material.							Remarks. (Chiefly made by senders.)
					Crude Protein.	Crude Fat.	Carbohydrates.	Crude Fibre.	Crude Ash.	Lime, CaO.	Phosphoric Acid, P_2O_5.	
					%	%	%	%	%	%	%	
4472	March ..	*Indigofera enneaphylla* ..	..	Gayndah	15·2	1·0	42·6	23·4	17·8	6·200	·555	One of the most plentiful, persistent, and perhaps useful fodders of this district. Running along the ground when heavily stocked and prolific seeder. 18 in. high. Leafy plant in flower. Somewhat resembles lucerne. Whole plant analysed. H.C.N. (emulsin), nil.
4473A	March ..	*Cassia mimosoides* (Leaves and Twigs)	Artillery Plant	Gayndah	15·1	2·1	44·7	32·6	5·5	1·322	·447	Very prevalent and a great fodder, and if unstocked, growing into a fairly large branchy bush. 21 in. high. Somewhat like sensitive plant with small yellow flowers. H.C.N. (emulsin), nil.
4473B	March ..	*Cassia mimosoides* (Whole Plant)	Artillery Plant	Gayndah	13·6	1·5	45·5	33·8	5·6	1·122	·456	
4474A	March ..	*Indigofera parviflora* (Leaves and Small Twigs)	Bean Plant or Curly Weed	Gayndah	18·0	1·4	50·6	18·1	11·9	4·029	·545	Seems to be short-lived but great drought-resister. Doubtful of palatability though it is evidently fed off in pastures. Coarse stalks with very plentiful bean-like seed pods. Large quantity of leaves fallen. Height, 18 in.
4474B	March ..	*Indigofera parviflora* (Whole Plant)	Bean Plant or Curly Weed	Gayndah	12·2	1·0	43·3	34·6	8·9	2·466	·463	
4475	March ..	*Indigofera hirsuta*	Wild Lucerne	Gayndah	13·3	1·0	51·5	25·5	8·7	2·551	·562	This is the biggest grower of the native legumes and at times almost covers the grasses in some areas of granite country. Coarse stems with large bundles of seed heads. Not very leafy when dry. 2 ft. high. Leaves and top portion only analysed. H.C.N (emulsin), nil.
4476	March ..	*Indigofera viscosa*	Round Bean Plant ..	Gayndah	16·2	·8	45·3	26·4	11·3	3·306	·921	A common and fairly plentiful herb amongst the grasses, possibly palatable, and has the peculiarity of sending out the beans under the stems (as well as on top and sides), thus shoving them under ground for protection. 21 in. high. Coarse stalks with stick-like leaves and round bean seeds. Whole plant analysed. H.C.N. (emulsin), nil.

4676	April ..	*Fimbristylis diphylla*	A Sedge	..	5·8	·9	53·7	27·7	11·9	·474	·455	Small tufts of green, grass-like plant about 4 in. high, with a few flowers and seeds somewhat resembling the flowers of nut grass.
4924	April ..	*Panicum decompositum* ..	..	Longreach	6·2	1·3	45·1	27·9	19·5	·442	·209	Straw-like grass with large, loose seed heads in full seed. Some seed had fallen from the sample in transit. Height, 3 ft.
5001	April ..	*Panicum maximum*	Guinea Grass	Brisbane	22·7	1·3	34·2	22·2	19·6	·854	·130	H.C.N., nil.
5013A	April ..	*Crotolaria goreensis* (Tops only)	..	Glass House Mountains	20·4	·9	43·6	27·3	7·8	1·403	·505	Original growth 7 ft. high. Planted 21st October, 1933. Originally introduced by C.S.I.R. from Gambia, East Africa. H.C.N., nil.
5013B	April ..	*Crotolaria goreensis* (Whole Plant)	..	Glass House Mountains	13·1	·7	35·4	44·2	6·6	1·067	·323	
5014	April ..	*Crotolaria goreensis* (Whole Plant)	..	Glass House Mountains	17·5	·6	37·7	36·8	7·4	·992	·399	Recut. Cut 15th February, 1934. Second growth, 3 ft. high. H.C.N., nil.
5231	May	*Echinochloa crusgalli* ..	Wild or Barnyard Millet	Brisbane	12·0	1·0	37·2	29·3	20·5	·926	·752	30 to 36 in. high. Green with seed heads full of fully grown green seed. Stalks somewhat strawy.
5256	May	*Stylosanthes Guineaensis* ..	..	Rockhampton ..	13·0	1·6	40·4	34·5	10·5	·194	·895	Grown from seed sown 29th November, 1933. 2 to 3 ft. high. Leafy with rather harsh stalks. No seed heads or flowers on sample.
5631	May–June ..	*Acacia Farnesiana* (Seed Pods)	Mimosa Seed Pods ..	Barcaldine (C.) ..	17·1	1·2	..	..	3·9	·66	·45	Sample too small for complete analysis.
5842A	May–June ..	*Acacia Farnesiana* (Whole Pods)	Mimosa Seed Pods ..	Barcaldine (C.) ..	17·3	1·9	57·1	19·4	4·3	·881	·475	H.C.N., nil ; alkaloids, nil.
5842B	May–June ..	*Acacia Farnesiana* (Seeds Only)	Mimosa Seeds	Barcaldine (C.) ..	20·9	2·3	54·7	18·3	3·8	·542	·614	
5437	May	..	Peanut Hay	Crawford Siding ..	9·0	1·1	50·3	28·4	11·2	2·801	·209	
5894	June ..	*Brachiaria miliiformis* (*B. distachya*)	..	Cairns	10·7	·9	48·8	30·2	9·5	·734	·717	Green with full seed heads. 16 in. high. Soft leaves but stalks coarse and straw-like.

REPORT OF SEEDS, STOCK FOODS, FERTILIZERS, PEST DESTROYERS AND VETERINARY MEDICINES ACTS BRANCH.

SEEDS 1933–34.

During the year ended June, 1934, no less than 2,063 samples of seed were examined at the Seed Laboratory, as against 1,830 during the previous year. The principal results are as set out in the following tables. Before considering these it is well to note that the samples can be divided as follows:—

201 samples of agricultural seeds sent in by seven large merchants.

119 samples of agricultural and vegetable seeds received from thirty-one dealers carrying on business in different parts of the State.

696 samples of vegetable and agricultural seeds, taken in transit by officers of this branch before the importer had possession of the goods.

493 official sealed samples taken by officers of this branch from large merchants carrying on business in Warwick, Toowoomba, Brisbane, Gympie, and Kingaroy; these samples represent large bulk lots held by merchants.

149 samples of seeds received from growers (farmers) selling seeds.

43 samples of seeds received from farmers, representing seeds that they had purchased, therefore examined free.

362 samples of seeds from sources not elsewhere included.

In the table giving the germinating capacity of the principal seeds for sowing examined for the purposes of the *Commerce* (*Trade Descriptions*) Act, 1905, during the year ended 30th June, 1934, it will be noted that the highest germination recorded for the year is given, also the percentage prescribed by the Regulations under the Queensland Seeds Acts, and where such is not prescribed the proposed standard. The average germination of samples up to standard and the average germination of samples below the Queensland standard together with the lowest germination recorded during 1934 is also given. It should be understood that the figures given relate to seed from overseas, sampled and tested before the importer had delivery.

In the case of Mauritius beans which are imported from Fiji, New Guinea, and Java, and mostly landed at the ports of Townsville and Cairns, it will be observed that out of forty-three samples eleven failed to germinate up to the low standard of 60 per cent. prescribed by the Queensland Seeds Regulations, one sample being as low as 29 per cent.

The beans to which these particulars relate were obtained under the Quarantine Act by officers stationed at Cairns and Townsville, and subsequently forwarded to this branch for examination.

It will be noted that three samples of cowpeas were imported from New Guinea. Unfortunately, there appears to be an impression in North Queensland that all cowpeas sown in the northern areas come from overseas, overlooking the fact that large areas are cultivated in Southern Queensland to meet the Northern demand.

In the case of radish and tomato, represented by eighty-three samples, it will be noted that five of such samples did not germinate up to the low standard of 65 per cent., the lowest germination in each case being 52 per cent. This matter may not be of much importance, but one should keep in mind that the energy of growth indicates the rapidity of germination, and low germinating samples only reach the figures given after considerable delay, this means that in the field not half of such germination would produce plants; in other words low germinating samples of carrot and lettuce cannot be expected to give a full stand.

When dealing with "purity" further remarks on this table will be made. It need hardly be pointed out that in the case of vegetable seeds the first essential is that the seed shall be true to name or type. Absolutely worthless strains may be of high germination, yet mislead the novice and cause serious loss to a market gardener producing crops for market sale.

GERMINATING CAPACITY OF THE PRINCIPAL SEEDS FOR SOWING EXAMINED FOR THE PURPOSES OF THE COMMERCE (TRADE DESCRIPTIONS) ACT, 1905, DURING THE YEAR ENDED 30TH JUNE, 1934.

Kind of Seed.	Imported from—	GERMINATION.					NUMBER OF SAMPLES.		
		Highest recorded during 1933-34.	Percentage prescribed by Queensland Regulations.	Average of samples up to Queensland standard.	Average of samples below Queensland standard.	Lowest recorded during 1933-34.	Up to Queensland standard.	Below Queensland standard.	Total number of samples examined.
Beans—		%	%	%	%	%			
French	Norfolk Island, New Zealand, U.S.A.	99	75	94	..	92	16	..	16
Lima	U.S.A.	99	75	97	..	92	5	..	5
Mauritius	Fiji, New Guinea, Java	98	60	83	42	29	32	11	43
Rice	New Guinea	98	†75	97	..	96	3	..	3
Beet	Holland, England, France, U.S.A., Germany, New Zealand, Japan	*92	*55	*70	..	*55	47	..	47
Cabbage	Holland, U.S.A., England, Germany, New Zealand, France, Japan	98	65	86	63	63	56	1	57
Carrot	Holland, England, Germany, France, U.S.A., New Zealand, Japan, Italy	86	55	71	46	42	49	2	51
Cauliflower	England, Italy, Holland, New Zealand	99	60	91	59	59	16	1	17
Cowpeas	New Guinea	92	65	88	..	85	3	..	3
Cucumber	U.S.A., Italy, Holland, Japan, New Zealand	99	65	94	50	50	17	1	18
Kohl Rabi	Japan, New Zealand	84	†60	58	18	Nil	3	2	5
Lettuce	Holland, U.S.A., Italy, Germany, England, Japan	99	65	92	45	39	31	2	33
Mangel	Holland, Germany, England	*98	*55	*81	..	*66	9	..	9
Marrow	Holland, England, Japan, U.S.A., Germany, France	99	65	86	55	55	19	1	20
Rockmelon	U.S.A.	96	65	87	..	85	3	..	3
Onion	Holland, Italy	94	60	79	..	62	18	..	18
Parsnip	New Zealand, Holland	76	25	70	..	61	3	..	3
Parsley	Holland, Japan, Germany	67	40	58	18	Nil	3	2	5
Peas	New Zealand, Holland, Japan	99	75	95	..	85	26	..	26
Radish	Holland, Germany, Japan, New Zealand, U.S.A., England	99	65	84	54	52	30	2	32
Rye Grass	New Zealand	83	60	76	..	71	2	..	2
Rape	Holland	94	70	94	..	94	2	..	2
Red Clover	New Zealand	93	†75	93	..	93	2	..	2
Swede	Germany, Denmark, Holland, England, New Zealand	91	65	85	..	71	16	..	16
Sweetcorn	U.S.A., New Zealand, Japan	98	75	80	14	14	7	1	8
Tobacco	Canada	96	55	92	..	89	8	..	8
Tomato	U.S.A., Japan, Holland	99	65	82	56	52	48	3	51
Turnip	England, Germany, Holland, U.S.A., Japan	98	65	87	..	65	26	..	26
Watermelon	U.S.A., Japan	94	60	85	..	65	29	..	29
Small consignments not elsewhere included	Holland, England, Germany, U.S.A., France, Japan	..	..	..	..	..	..	..	231
				Total number of samples ..			529	29	789

* In the case of Beet and Mangel the figures given indicate the percentage of germinable clusters. † Proposed standards of germination.

In the following table dealing with the germinating capacity of the principal seeds examined during 1933-34 for purposes of the Pure Seeds Acts, it will be noted that, as in the case of the previous table, the highest germination is given, also the minimum required by the Regulations, and other particulars as already explained. This table is principally concerned with seeds grown in Australia, although our Queensland farmers are not responsible for the vegetable and other seeds in the preceding table. The table now being dealt with represents in the main seeds that they have grown.

From the first two items it will be observed that out of forty-nine samples of barley no less than twenty-one were below the standard of germination, which in the case of barley is only 85 per cent. Of course, it can be alleged that the low germinating samples were the result of an exceedingly wet season. Although this is correct, we must not overlook the fact that barley for malting purposes must have a high, uniform, quick germination. In other words, quick germination, in addition to a low protein content, make malting barleys ideal for the production of good malt.

The thirty-seven samples of cowpeas referred to in the table were Queensland-grown, and, although the standard prescribed is only 65 per cent., no less than six samples were below this low standard, principally on account of bad harvesting and worse storage. In that portion of the table relating to grasses it will be noted that proposed standards have been suggested for *Bromus marginatus*, Molasses Grass, *Panicum antidotale*, and *Phalaris tuberosa*.

In the case of *Paspalum dilatatum* and Rhodes Grass it will be seen that out of 167 samples no less than thirty-six germinated below the low standard prescribed.

The low germinations of many samples of Paspalum and Rhodes Grass is principally due to the low caryopses content, the word "caryopses" meaning the actually formed seeds.

In Queensland both Rhodes and Paspalum grass seeds are tested on the Belfast method. A Rhodes Grass sample with an average germination of 44 per cent. by the Belfast method may have a germination of 73 per cent. by the Continental method. This point is appreciated in the

United States of America, where Rhodes Grass seeds are not tested by the Continental method. A sample of Paspalum seed with an average germination of 35 per cent. by the Belfast method may have a germination of 61 per cent. by the Continental method.

Our method (Belfast) takes into account every seed that a farmer or seed merchant would consider as seed.

Each year during the months of February and March many samples of freshly harvested Rhodes and Paspalum are received for germination tests. Some of these samples represent seed cut at the earliest possible moment and obviously of very feeble growth; others require a more or less lengthy period of after-ripening before they reach their maximum germinating power.

Although this after-ripening process is best achieved by the seeds ripening in the seed head before threshing, Nature can do a lot even with threshed seed if it is stored for two or three months in an airy shed. Growers of Rhodes Grass seed would be well advised to give this matter the fullest possible attention, as buyers are not anxious to purchase seeds that take from twenty to forty days to reach the minimum germination of 30 per cent. required by the Regulations under the Pure Seeds Acts.

The case for *Paspalum dilatatum* is somewhat similar. Growers of such seed and farmers who desire to purchase same would always do well to make certain that the seed is hand-shaken. The matter is well explained by the following paragraphs, setting out what actually happened in the case of hand-shaken and sweated samples.

Two samples received from the Gympie district were marked respectively "Hand-shaken Paspalum seed about 100 lb." and "Paspalum seed about 500 lb." The first contained 70 per cent. of formed seeds; the latter 19 per cent. Neither sample germinated when tested in the ordinary way. After being treated to induce maturity, the hand-shaken sample had a germination of 25 per per cent., and the other 2 per cent.

It was ascertained that the Paspalum paddock had been cut by men used to the work; the hand-shaken lot consisted of seed that readily shattered out on to a sail-cloth; the remainder of the grass was then put into a heap. After sweating, the second sample, representing 500 lb., was obtained. From the previous paragraph it will be noted that this sample only contained 19 per cent. of formed seed. It is therefore obvious that the method known as "sweating" practically only recovers immature seeds, which Nature in the ordinary way would not detach from the seedhead.

Out of sixty-seven samples of Lucerne seed it will be noted that seven samples had an average germination of only 43 per cent, such samples containing an average hard seed content of 16 per cent.—"hard seeds," meaning that they had seed coats so impervious to water as to delay germination. The sixty-seven samples do not represent the whole of the samples taken during the year ended the 30th June, but relate to those that had been worked out by that date. The presence of Dodder, a bad weed in Lucerne, is further explained in the portion dealing with purity.

Maize, it will be noted, shows four samples out of eighteen that were not up to the low standard of 85 per cent. It is a little over a year since many farmers had cause to complain of the bad germination of Seed Maize, which at the time was traced to other farmers, fumigating maize and keeping it for several years before offering it for sale, and storing it with the fumigant present. In other words, they had used bisulphide of carbon, and failed to let out this heavier-than-air gas after the first thirty-six hours.

The Millets do not call for any comment. Matters relating to Oats will be dealt with in the subsequent paragraphs dealing with Purity.

Sudan Grass (*Sorghum sudanense*) from the table it will be noted that out of 120 samples, 20 did not comply. Three of the 20 containing Prohibited Weed Seeds. One sample germinating 1 per cent. only, and 17 samples had an average of only 21 per cent. It must be remembered that Sudan seed is grown by Queensland farmers, many holding it in storage, waiting for a rise in price before offering it to merchants, who, if well acquainted with the seed trade, purchase after purity analysis and germinating tests have been made on a sample drawn by them from the bulk delivered.

The miscellaneous samples with a total of 53, includes some that were taken during the latter end of June, some of which will be referred to in the notes on Purity.

The germination of vegetable seeds do not call for any comment. The question, however, of their being true to name is dealt with in a subsequent paragraph.

GERMINATING CAPACITY OF THE PRINCIPAL SEEDS EXAMINED DURING 1933-34 FOR PURPOSES OF THE PURE SEEDS ACTS.

Kind of Seed.	Germination.					Number of Samples.			
	Highest recorded during 1933-1934.	Percentage prescribed by the Regulations	Average of samples up to standard.	Average of samples below standard.	Lowest recorded during 1933-1934.	Up to standard.	Below standard.	Number of samples that contained prohibited weed seeds or diseased or insect infested seeds.	Total number of samples examined.
Agricultural Seeds.	%	%	%	%	%				
Barley—									
Cape and Malting	99	85	92	76	66	19	18	..	37
Skinless	97	85	95	74	60	9	3	..	12
Clovers—									
Red or Broad-leaved (*Trifolium pratense*)	98	†75	98	..	98	5	..	..	5
Subterranean (*Trifolium subterraneum*)	93	†70	92	..	91	2	..	..	2
White (*Trifolium repens*)	92	†70	81	..	76	4	..	..	4
Stylosanthes mucronata	57	†40	48	..	23	4	2	..	6
Cowpeas	98	65	83	51	44	31	6	..	37
Cowpeas (average percentage of hard seed not included in germination).	..	..	4	1	..	..	..	..	..
Grasses—									
Bromus marginatus (Perennial)	88	†50	80	..	75	8	..	..	8
Canary (*Phalaris canariensis*) (Annual)	97	70	94	..	90	8	..	..	8
Cocksfoot (*Dactylis glomerata*)	18	50	..	15	12	..	4	..	4
Couch (*Cynodon dactylon*)	46	30	40	..	35	4	..	..	4
Molasses (*Melinis minutiflora*)	38	†20	38	2	1	4	4	..	8
Panicum antidotale	83	†40	73	39	38	8	2	..	10
Paspalum dilatatum	66	20	35	12	4	36	10	..	46
Prairie (*Bromus unioloides*)	95	50	87	30	..	20	3	5	28
Phalaris tuberosa (Perennial)	89	†55	71	..	52	18	..	..	18
Rhodes (*Chloris gayana*)	71	30	42	16	8	95	26	..	121
Rye Grasses—									
Perennial	94	60	85	..	65	13	..	..	13
Annual	96	60	78	54	52	15	3	..	18
Lucerne	98	65	83	43	45	60	7	..	67
Lucerne (average percentage of hard seed not included in germination).	..	..	6	16	..	..	..	..	..
Maize	98	85	91	80	76	14	4	..	18
Mangel	*95	*55	*75	*36	*27	10	2	..	12
Millets—									
Foxtail (*Setaria italica*)	96	70	88	60	54	26	3	..	29
Japanese (*Echinochloa crus-galli*, var. *edulis*, Syn. *Panicum crus-galli*.)	97	70	90	50	50	35	1	..	36
White Panicum (*Echinochloa frumentacea*, syn. *Panicum frumentaceum*).	95	70	86	69	69	38	1	..	39
French Millet (*Panicum miliaceum*)	96	70	92	65	65	8	1	..	9
Oats	99	80	93	..	82	74	..	..	74
Peas, Field (*Pisum arvense*)	98	75	94	..	85	19	..	..	19
Rape	88	70	88	..	88	4	..	..	4
Rye	96	80	90	..	80	6	..	..	6
Sorghum vulgare	96	70	87	35	11	51	5	..	56
Sudan Grass (*Sorghum Sudanense*)	96	70	81	21	1	100	17	3	120
Tares	94	75	92	..	91	6	..	..	6
Tobacco	97	55	82	5	..	25	6	..	31
Wheat	93	85	90	57	25	7	3	..	10
Peanuts	98	†75	79	44	42	86	3	..	89
Cotton	91	70	76	20	5	11	14	..	25
Miscellaneous Samples	..	..	..	..	..	..	..	..	53
Vegetable Seeds.									
Beans, French	99	75	96	67	67	47	1	..	48
Beet	*90	*55	*79	..	*69	8	..	..	8
Cabbage	73	65	70	50	50	9	1	..	10
Carrot	64	55	61	26	5	7	3	..	10
Cucumber	93	65	83	..	73	9	..	..	9
Lettuce	98	65	97	53	53	7	1	..	8
Onion	98	60	84	..	64	25	..	..	25
Peas, Garden (*Pisum sativum*)	99	75	94	47	47	32	1	..	33
Pumpkin	98	65	89	..	84	10	..	..	10
Tomato	90	65	79	47	47	14	1	..	15
Turnip	95	65	92	37	37	2	1	..	3
Watermelon	82	60	80	..	80	3	..	..	3
									1,274

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* In the case of Beet and Mangel the figures given indicate the percentage of germinable clusters.

† Proposed standards of germination.

Out of the 2,000 samples of seed examined during the year under review, it would be ideal if field trials could be made of all bulk lots of agricultural and vegetable seeds, excluding such articles as maize, wheat, peanuts, cotton, canary, and tobacco, as in my opinion it would be a great protection to growers as well as a guidance to importers if it were possible to make properly organised field trials of the main varieties. These trials, of course, should be open to farmers as well as to the seed trade. In this respect it should be realised that, except in the State of Queensland, most seed merchants of repute have their own trial grounds. Unfortunately, such trial grounds do not exist in our State. To get some idea of the magnitude of the work required it can be stated that a minimum of 1,500 samples would require at least 1½ acres of properly prepared land. All land prepared in a proper manner to carry out variety trials of vegetable and other seeds must contain a good supply of humus, otherwise the land will not carry growing crops during dry spells. As the trials would include deep-rooted crops, such as carrots, shallow ploughing is useless.

With trial grounds a good coat of dung is the first essential in the absence of farmyard manure —a commodity that cannot truthfully be claimed to exist in Queensland—reduces one to the purchase of cow dung to an extent of at least twenty loads per acre. A crop of cowpeas could also be grown and dug in at a suitable time, it being understood that trial grounds must be properly dug to get the best out of all the varieties sown. Further, bad digging is better than good ploughing, and any land that will not permit of it being dug to a depth penetrated by a digging fork is unsuitable for the purpose.

To get an area ready and in good heart would take several months. Assuming such work could be in hand, say, next August, there is no reason why a start with such trial ground could not be made during March of 1936. If such an area was available the cost of carting cow dung, digging, and for the necessary number of stumps made of hardwood, getting these painted and numbered from 1 to 1,500, would probably cost more than £50 for the stumps alone. The labour required to keep the trials free from weeds and the ground dug when necessary would probably be equivalent to rather more than one man working continuously for a year. When it is considered that no less than twelve varieties of carrot seed are imported—these twelve so-called varieties being represented by sixty-one samples—one can quite realise the advantage that would occur to market gardeners if they were able to see the exact difference between these so-called varieties and be able to distinguish which is the one nearest to their own market requirements.

Usually there are nine so-called varieties of beet imported, about ten varieties of cabbage, thirteen of lettuce, four of mangel, eleven of cauliflower, ten of cucumber, eleven of marrow, eight of radish, fifteen of turnip, seventeen of tomato, seven of peas, twelve of onion, and fourteen of watermelon.

Owing to the many complaints it is obvious that the trials of tomato alone would reveal many undesirable characteristics in the sources of supply, and when it comes to seeds produced in Australia many a Queensland grower of seed would be astonished at the inferiority of his strains in comparison with the standard varieties grown by men who give the cultivation of such crops for seed purposes the thorough attention that such matters deserve.

Millets, such as the ordinary forms of *Setaria italica,* when grown side by side, would be an absolute eye-opener to the people who persist in still calling the dwarf early variety of Setaria Giant Panicum. Even with such trial grounds it would be impossible for every grower or purchaser of seed to make himself thoroughly acquainted with all the work that should be continuously carried on. It would give an opportunity for merchants who have purchased the farmer's seed crop for cash, in the hope that the seed purchased will be true to name, to make far greater discrimination in the buying of their future supplies, as, obviously, when a merchant, or for that matter a good farmer, saw the inferior strain of any particular variety it would be reasonable to assume that he would not again purchase such variety from those concerned or, in fairness to himself and his neighbours, encourage the growth of inferior seeds even when such were offered for sale at less than the cost of production.

Good seed can only be produced by the strict adherence to very simple rules, which apply to the grower of the seed, not to the local storekeeper or produce merchant who only sells what he buys. Let us therefore, for a few moments, consider, not the licensing of seedmen or the prosecution of every seed merchant, but what the actual grower of a simple article like pumpkin or tomato should do.

Too often the actual grower is very interested in his neighbour's crop, also in the pumpkins that took first prize at the district show. On the face of it this looks like selection, but, unfortunately, fails to fit the bill; unless the actual grower selected the plant, he should not be permitted to sell. We can see that the license must apply to the grower more than to the dealer. Assuming licenses for the growing of, say, tomato seed were issued, not by paying a guinea a year but by merit, what would the grower be required to do?

In the first place, the grower should realise that he must carry out some very simple rules, which in the case of tomato would be somewhat in the following manner:—

The first consideration would, of course, be to ascertain how much seed he could grow with reasonable hope of selling same. Of course, the grower would have to realise that one grower, or for a matter of that twenty growers, would not have a monopoly. Further, if he sold to market growers, he would be forced to give credit and enter into the retail seed trade, which means selling other seeds than one variety of tomato.

Assuming our grower starts with one variety of tomato, and finds that about 2 cwt. of "Marglobe" tomato is imported each year. It is obvious that he could best sell such a quantity to one or more of the leading seeds merchants in Brisbane, Sydney, or Melbourne. Now comes the first pinch. The retail price may be 3s. per single ounce, or in pound lots 2s. per ounce, in

Australia. In the United States of America it is just possible that a market grower could buy his supply of good tomato seed at 20s. per pound—a seed merchant for less. The ordinary retail seedsman, however, who purchases his stocks from the cheapest source of supply, probably would not pay even 5s. per pound.

Our grower therefore has two channels open to him—the supply to such growers as will pay before delivery, or the sale of his crop direct to a large seed merchant who is willing to take the year's harvest and make prompt payment for same. If the grower is wise he will, of course, contract with such a merchant. The wholesale merchant will, of course, want something more than a mere assurance of the seed being true to name; in some cases he might like to provide stock seed (this is never sold) and make a very careful examination of every tomato plant growing on the farm.

In the United States of America great care is given to the selection and saving of tomato seed. As an example of the care taken, the old and well-known firm of D. Landreth do not make any secret of their methods. Realising the importance of the plant as the basis of selection, they examined all their tomato fields some few years since, the best plants being staked and given numbers, and the seed from each plant saved separately. The following year the seed from each staked plant was planted separately and a plot of each selection grown. In each following year the poorer selections have been discarded. The basis of such selection being—first, the grading and weighing of the fruits from each selection; examining each plant for the detection of disease and its trueness to type; examining the exterior and interior colour of the ripe fruit; careful notes as to the shape and size of fruits; also a careful examination of the internal structure of the fruit.

After three years it was possible to divide the "Marglobe" variety into three strains—one with heavy foliage, one with light foliage, and a strain called C producing somewhat larger and more flattened fruits.

As before stated, the work of selection must start with the plant; the saving of perfect fruits for stock seed without consideration of the plants from which these fruits came is generally very disappointing. These remarks apply to cucumbers, pumpkins, &c., as well as tomatoes.

From the foregoing it will be seen that the growing of good seed is not quite so easy as many think, and every firm of seed merchants who hope to keep their trade are looking all over the world for the best strains of the seeds that are selling. In other words, the purchaser of any seed is interested in the crop that the seed will produce. Good seed produces good crops, and good crops make satisfied customers. A seed merchant's best advertisement is a satisfied customer. Growers should keep this in mind when trying to sell their own crop to a merchant for resale as seed for sowing.

The ever-growing demand for such vegetables as cabbage, cauliflower, carrot, beet, onion, turnip, and tomato has directed many growers' attention to the necessity of sowing the varieties most suitable for Queensland climatic conditions and general market requirements. In the past little attention has been given to strains, the usual idea being that identical crops would be produced from any kind of cabbage, cauliflower, &c., and the buyer's principal aim was the price of the seed.

New seeds of beet, cabbage, carrot, cauliflower, cucumber, lettuce, marrow, pumpkin, swede, turnip, and tomato will easily retain their germination for a year if kept in a cool, dry place. Market growers would therefore be well advised to purchase their requirements of cabbage, cucumber, tomato, &c., a year in advance, and make a trial of each lot by putting a row alongside the main crop. If the seed proves to be the strain best suited for market requirements, they have enough on hand for their year's main crop. If unsatisfactory their loss is little more than the cost of the seed.

When buying it is well to ascertain the seedsman's stock number and any other particulars regarding the strain purchased. This will enable the seedsman to supply the buyer's future requirements with seed from the same source. When a good source of supply has been found, it is obvious that the buyer should again obtain supplies from the same merchant, as the buying of supplies from casual vendors of seed in most cases leads to monetary loss in the resulting crop.

ANALYTICAL PURITY.

The term "purity" when used in seed analysis means analytical purity—that is to say, the percentage by weight of the seed to which the lot purports to belong after the removal of all ingredients. Foreign ingredients therefore in purity analysis, includes seeds of weeds and seeds of any kind other than that to which the sample purports to belong, also any material other than seed. As all seed or grain is liable to damage during threshing, cleaning, &c., the term "inert matter" is used to indicate all split, crushed, or otherwise damaged seed as well as any material other than seed. The following working out of a sample representing a bulk of Queensland-grown uncleaned canary is self-explanatory:—

	Percentage by Weight.
Analytical purity (canary)	90·03
Inert matter (material other than seed, 0·10; broken seed, 7·90	8·00
Seeds of weeds and seeds of any kind other than canary (weed seeds, 1·71; seeds of cultivated plants, 0·26)	1·97
	100·00

Germination tests are made on the seeds included in the analytical purity. Assuming 300 of such seeds were put out to germinate and gave an average result of 93 per cent., the actual value of the sample would be 93 per cent. by count of seeds included in the 90 per cent. by weight.

It is quite possible to put ten peas in a flower pot and produce nine plants, and yet sell a sack of peas with an analytical purity showing the following results:—

	Percentage by Weight.
Analytical purity (grey field peas) ..	36·8
Inert matter (material other than seeds, 1·6; split and damaged peas, 61·5) ..	63·1
Weed Seeds (wild oats)	0·1
	100·00

Two hundred of the peas included in the analytical purity being put out at 20 degrees C. to germinate resulted in the production of 186 plants, which divided by 2 gives a percentage of 93. The true value of a sample can be found by the following formula:—

Analytical purity × Germination ÷ 100

$\frac{36{\cdot}8 \times 93}{100}$ × 34 per cent. by weight of germinable peas.

This means that the farmer gets out of 100 lb. of the material purchased only 34 lb. of peas capable of producing plants.

The regulation under the Seeds Acts prohibited such seeds as Dodder, Datura, also the seeds of the castor oil plant. For the better understanding of the matter the following table sets out the prohibited and deleterious matter in both seeds and stock foods:—

PROHIBTED DELETERIOUS MATTER.

Name.	Remarks.	Found in the undermentioned Seeds.	Found in the undermentioned Stock Foods.
Datura spp. (Thorn Apple)	Poisonous	Sudan, Japanese Millet, Setaria, Canary, French Millet, White Panicum, Prairie	Chaff
Alternanthera Achyrantha (Khaki Weed)	Causes Mechanical Injury ..	..	Hay and Chaff
Cuscuta spp. (Dodder) ..	Deleterious to plant and animal life	Lucerne	Hay and Chaff
Papaver spp. (Poppy) ..	Poisonous	Oats	Cereal Chaff
Agrostemma Githago (Corn Cockle) ..	Poisonous	Canary Seed	..
Xanthium spinosum (Bathurst Burr)	Causes Mechanical Injury ..	Sudan, Japanese Millet	Hay and Chaff
Xanthium pungens, syn. *strumarium* (Noogoora Burr)	Causes Mechanical Injury ..	..	Hay and Chaff
Ricinus communis (Castor Oil Bean)	Poisonous	..	Hay, Chaff and Oil Cake
Tilletia tritici (Bunt) ..	Deleterious to plant and animal life	..	Wheat
Claviceps purpurea (Ergot)	Poisonous	Sometimes found in imported Canary seed ; also in some imported grasses	..

A long list of Latin names probably would not convey any meaning to the majority of readers, but the short list of weed seeds frequently found in such common seeds as Rhodes, Japanese Millet, Sudan, Lucerne, Canary, Prairie, Setaria, and White Panicum may give some valuable guidance to the matter. Where possible, apart from the accepted Latin name, the common name most frequently applied is given.

Kind of Weed.	Found in the undermentioned Seeds.
Amarantus spp. (Amaranth)	Lucerne, Setaria, Japanese Millet, White Panicum, Couch Grass, French Millet, Sudan, Linseed, Prairie.
Avena fatua (Wild Oats)	Oats, Barley, Prairie, Wheat.
Chenopodium spp. (Goosefoot)	Rhodes, Japanese Millet, Sudan, Lucerne, Canary, Prairie, Setaria, White Panicum.
Cnicus lanceolatus (Spear Thistle)	Lucerne, Canary, Sudan, Prairie, Barley.
Hibiscus trionum (Bladder Ketmia)	Lucerne, Japanese Millet, Sudan, Setaria, Canary, French Millet, Prairie, White Panicum.
Lepidium ruderale	Lucerne, Setaria, Japanese Millet, Rhodes, Prairie, Oats.
Lolium temulentum (Darnel, Drake)	Oats, Barley, Wheat.
Malva parviflora (Mallow)	Prairie, Canary, Barley, Oats.
Melilotus parviflora (Hexham Scent)	Lucerne, Prairie, Wheat, Barley, Oats.
Panicum sanguinale (Summer Grass)	Rhodes, Paspalum dilatatum, White Panicum, Japanese Millet, Setaria, Couch Grass, Sudan, Lucerne.
Polygonum convolvulus (Black Bindweed)	Sudan, Canary, Barley.
Rumex Brownii (Dock)	Lucerne, Canary, Oats, Paspalum dilatatum, Couch Grass, Prairie.,
Salvia lanceifolia (Wild Mint)	Sudan.
Sida rhombifolia (Sida Retusa)	White Panicum, Prairie, Sudan.
Stachys arvensis (Stagger Weed)	Prairie, Japanese Millet, Setaria, White Panicum.
Verbena bonariensis (Purple Top) ..	Rhodes, Paspalum dilatatum, White Panicum, Couch Grass, Lucerne, Prairie.

The Regulations permit of 1 per cent. by weight of weed seeds in any sample of seed, provided that such weed seeds do not include the prohibited weeds or deleterious matter.

One per cent. by weight does not appear much, but it must not be overlooked that in oats from the Southern States, also in some seeds grown on the Darling Downs, it is quite possible to find samples containing more than ½ of 1 per cent. of Hexham Scent (*Melilotus parviflora*), as well as Oriental Rocket, the seeds of which are small. As seeds of Oriental Rocket, Poppy, and Hexham Scent will easily pass through a sieve, perforated with round holes 2 mm. in diameter, the Regulations provide that any weed seeds that will pass through such an aperture shall not be present in the sample. To get some idea of the number of weed seeds that may be present in oats, the following particulars of a sample, recently examined, is self-explanatory:—

	Percentage by weight.
Analytical purity (Oats)	95·82
Inert matter	1·90
Weeds that would not pass an aperture 2 mm. in diameter	0·28
Weeds that will pass an aperture 2 mm. in diameter	1·40
Seeds of cultivated plants	0·60

Calculated to 1 pound, the weeds that would pass an aperture of 2 mm. in diameter numbered no less than 26,380, and consisted of Oriental Rocket and Poppy.

Mention has already been made of analytical purity and the percentage by weight of weed seeds allowed by the Regulations. In the case of Rhodes grass, a seed grown largely in Queensland, and often sold by the grower direct to other farmers, or offered for sale in large quantities to merchants who are prepared to pay for the grower's crop in cash, it is frequently overlooked that such seed often contains an extraordinary amount of weeds. Three typical samples of Rhodes grass seed, two of which contained 2 per cent. by weight of weed seeds, these, of course, differed in each sample. In one case 1 pound of the seed grown by the farmer contained over 7,700 weed seeds. Another sample contained over 27,000 weed seeds to the pound, the main weeds being:—*Andropogon* sp., *Chenopodium* sp., *Chloris divaricata, Malvastrum tricuspidatum, Siegesbeckia orientalis, Sida rhombifolia.*

Another sample from the same district, representing seed delivered to one of the leading merchants, contained over 7 per cent. by weight of weed seeds, again the weed seeds differing. The approximate quantity in 1 pound would, however, be over 117,000. It need hardly be pointed out that when the farmer harvested the seed and sent in the sample he must have been fully aware that such weed seeds were present.

Two typical samples of *Paspalum dilatatum* contained respectively over 3 per cent. and 1 per cent. of weed seeds. In the case of the 3 per cent. sample 1 pound would have contained over 19,000 seeds other than *Paspalum dilatatum.* These principally consisted of *Andropogon, Chloris gayana, Eleusine indica, Panicum sanguinale, Sida rhombifolia, Verbena* sp. In the case of the 1 per cent. sample the weed seeds amounted to, in 1 pound, over 16,000.

Prairie grass looks easy to grow and sell, free from weed seeds, yet one sample examined during the current year contained over 180 *Datura* seeds to the pound. In other words, 1 pound of this sample contained, apart from the *Datura* seeds, over 3,000 seeds of Wild Oats (*Hibiscus trionum*) and others.

Another sample of Prairie grass seed contained over 5,000 weed seeds in 1 pound. Such weeds included over 4,000 seeds of Mallow (*Malva parviflora*). The presence of this large quantity of weeds in the crop must have been known to the grower.

Sudan Grass (*Sorghum sudanense*) is largely grown in Queensland, and the purity is frequently complained of by merchants in other States. Of course, every farmer should recognise *Datura* when he sees it in his crop, as well as other weeds that are so often objected to. Farmers, unfortunately, often have cause to complain of the Sudan grass seed that they buy, and merchants have a continuous complaint relative to the Sudan seed that they buy from the farmers. Typical of the bad samples are the following:—

One containing just over 1,000 weeds to the pound, such weeds including: *Amarantus* sp., *Hibiscus trionum, Ipomœa* sp., *Polygonum convolvus, Stachys arvensis.*

Another sample containing over 500 weed seeds to the pound, such weeds including: *Datura, Hibiscus trionum, Polygonum convolvulus, Rumex* sp., *Xanthium spinosum.*

And typical of several samples that were returned by merchants to farmers on the Downs one of which contained over 600 *Datura* seeds to the pound.

There is, of course, a great cry against the Mint weed, yet several samples of *Sorghum sudanense* contained this impurity.

The Dodder contained in lucerne varies from year to year, although the samples examined up to an including the eleven months ended 1st June did not contain Dodder seed it does not mean that Dodder seeds in lucerne do not exist. The actual facts are somewhat as follows:—Merchants have lost so much money through having bulks of lucerne seed containing Dodder seeds condemned that they have, for their own protection, in many cases refused to consider any but good clean samples of lucerne produced in areas known to be free from Dodder. Typical of some of the bad samples was one containing over 9 per cent. of weed seeds, and another sample refused by a Warwick merchant containing 1 per cent. by count of Dodder.

It would seem impossible for ordinary Setaria seed to be present in lucerne, yet over 3,000 millet seeds per pound were calculated in one sample of lucerne. In another sample, recently examined, the weed seeds present amounted to three-tenths of 1 per cent. by weight. Actually the weed seeds present number, however, 3,300 to the pound.

In such large seeds as cowpeas, of course, it should be easy to offer samples of high germination and free from impurities. Recently a sample submitted by a merchant and received by him from a farmer contained more than 18 per cent. of mouldy cowpeas. The good cowpeas germinated only 57 per cent. Many other samples, supposed to be clay, contained cowpeas of other colours. Some samples, owing to insect attack, become heated, with the result that they are absolutely useless for seed purposes.

These few facts are mentioned to draw the farmer's attention to the necessity of great care with the seeds that he is growing within this State.

The sorghums are often used as a standby for dairy stock. No one, however, appears to have considered the low feeding value of such material when in the seed-head stage.

From a table in another portion of this report will be found the analysis of the ordinary varieties of sorghum at different stages of growth, as well as Sudan grass at similar stages of growth, and, last but not least, Johnson grass, which must be recognised as being highly poisonous. The table therefore sets out the relative amount of H.C.N.

One of the dangers with Sudan grass seed (*Sorghum sudanense*) is the presence of seeds of Johnson grass (*Sorghum halepense*). These are difficult of detection, and the only method possible to ensure that any line of Sudan is free from such is by means of a method of seed certification.

This has been carried out in other countries, notably New Zealand, who have built up a large export trade with their certified Rye grass, Cocksfoot, and White Clover seed, and is now being operated in New South Wales for the sale of *Phalaris tuberosa* seed. Seed certification enables the purchaser to obtain in sealed bags seeds that have been grown under supervision. In Queensland, owing to the risk of Johnson grass being present in the ground before the seed is sown would involve the grower, if seed certification is taken seriously, in notifying the Department at least one year before he sows Sudan, so that it could be ascertained from actual field inspection that the ground was free of Johnson grass. The resultant crop would have to be harvested, bagged, and sealed under supervision.

When all bags in any one line have been threshed an officer should draw a representative sample and forward same to the Seed Laboratory for examination. The sample would serve as a check on the seed that has been produced, and should influence the decision regarding future seed saving of this particular area.

In New Zealand the sacks are branded in such a manner as they leave the thresher as to convey all necessary information concerning the particular lot. The system of branding consists of three lines of letters or figures. The top one consists of the district letters preceded by a figure indicating the year of harvest, and the second line is the registered number of the field, and in the case of two or more fields being threshed together two or more letters are used. On the third line are code letters indicating the contents of the sack.

When the sealing or branding is completed the grower should be required to sign a declaration to the effect that the sacks sealed or branded by the officer contained no seed other than that harvested from the area indicated by the brand.

In Queensland efficient seed cleaning machinery outside of Toowoomba, Warwick, and Brisbane practically does not exist. The bulks would not again come under the notice of the Department of Agriculture until an application is received requesting the seals to be removed to permit of seed cleaning.

The officer attending the field sealing should have the authority to refuse to seal if he is in doubt as to the seeds origin, also to use his discretion in the sealing of any seed that he considers cannot be satisfactorily or economically machine dressed.

The foregoing refers to strain only, not to purity and germination. A certificate of purity and germination should relate to a sample drawn from the bulk after the seed has been machine cleaned. Therefore, the purity and germination certificate showing the results of the tests should be in the possession of the original seller who submitted the sample, and such certificate should form a compulsory feature on the sale of such seed within the State of Queensland.

It would be advantageous to adopt a system of seed certification in Queensland for such crops as *Setaria italica* (Foxtail Millet), *Bromus marginatus*, and some others. At present the necessary staff to examine such crops does not exist, and it is to be remembered that, although the area to be covered is only a portion of Southern Queensland, it would extend probably some 200 miles from the sea coast to about 100 miles north of Brisbane, and necessitate a large amount of travelling to view the crops at different stages of growth. At present an endeavour should be made to adopt some such system with the tall late variety of Setaria. The greatest difficulty, of course, is that farmers still buy on price; very few are actually interested in quality, which means that merchants are reluctant to contract for the growing of selected strains, knowing that the resulting crop will probably be unsaleable at a price sufficient to cover the necessary cost of selection.

MILLETS.

Under the Regulations the various millets have been divided into Foxtail, Barnyard, Mare's Tail, and Cat Tail. If this simple method is followed no confusion need exist:—

Seed Head Group.	Common Name.	Botanical Name.
Foxtail	Tall Late Setaria Short Early Setaria	*Setaria italica* *Setaria italica*
Barnyard	White Panicum	*Echinochloa frumentacea* syn. *Panicum frumentaceum*
	Japanese Millet	*Echinochloa crusgalli* var. *edulis* syn. *Panicum crusgalli*
Mare's-tail	White French Millet Red French Millet	*Panicum miliaceum*
Cat-tail	Pearl Millet	*Pennisetum typhoideum* and *Pennisetum glaucum*

Fox-tail millets are so named from the appearance of the seed heads. This division includes all forms of *Setaria italica*, which is often miscalled panicum, with the word "giant" prefixed when the seller intends to convey some idea as to the plant's height of growth, which factor can only be ascertained by an inspection of the growing crop. The pre-war name, Hungarian millet, also the United States of America post-war name, Liberty millet, instead of the old name, German millet, are often used.

It would save endless confusion if both sellers and buyers confined themselves to the correct name of *Setaria italica*—tall late or short early Setaria. Siberian millet (*Setaria italica* var. *rubra*) is a reddish seeded kind of fox-tail millet; the name "Siberian," unfortunately, is used for white panicum, which comes in the Barnyard group, and allied to Japanese millet.

From a series of experiments with samples of Setaria from all over the State, it has been found possible to divide the Fox-tail millets grown in Queensland into—

(1) Early seeders of dwarf growth—Short early.

(2) Late seeders of tall growth—Tall late.

The question as to whether the plant is Tall late or Short early can best be determined by an examination of the plants when just over 3 inches in height. Short early will be found to bear a profusion of hairs on the lower leaf sheath.

Tall late has a freedom from such hairs. The hairs found on and near the ligule of Short early will also be found to be by far the longest; further, the Short early Setaria is of a darker green than Tall late. There are other distinguishing features which, unfortunately, are not very stable, and can only be used by one well versed in their peculiarities.

Growing these two kinds of Setaria side by side under different conditions of weather and soil, it will be found that there is always approximately two weeks difference in maturity.

The conditions of growth greatly affect the appearance of the resultant crop so much that the tallest of the early varieties under favourable conditions would equal the height and appearance of the shortest of the tall varieties under dry conditions. Also the size of the seed-head would be similarly affected.

The examination and report as to the kind of these plants is now undertaken by the Seed Laboratory. Buyers are strongly recommended to inspect growing crops of all Foxtail millets before purchase; the submitting of a sample from the resulting crops is a last resort, the work should commence with the crop in its early stages of growth.

"Barnyard millets" grown in Queensland consist of White Panicum (white seed-head), which is surely establishing itself in favour as a quality feed for dairymen; also Japanese millet (brown seed-head).

"Mare's-tail millets" include both red and white French millet, seeds of which are used for mixed bird seed. Queensland's supply of the red-seeded variety is mostly drawn from Japan; attempts, however, are now being made to grow some on the Darling Downs, for seed purposes only. The white-seeded variety is now produced in large quantities on the Darling Downs; if care is given to keep the seed free from weeds all of Queensland's supply could be produced here.

From the open seed-heads this division is known as Mare's-tail millet (*Panicum miliaceum*). In the United States of America, however, it is known as "broom corn" millet, also as hog millet or proso; the words "broom corn" must not be taken as relating to the plant known in Queensland as broom millet or broom corn, which is a variety of non-saccharine sorghum, grown for its seed-head for the purpose of making brooms. The name "broom sorghum" would correctly describe this plant.

"Cat-tail" millet well describes the seed-heads of *Pennisetum glaucum*, and *Pennisetum typhoideum* commonly known as Pearl millets, which are sometimes sold as "Pencillaria" or "Mand's Wonder Forage Plant." The cultivation of cat-tail millets is not recommended, the plant being of poor feeding value.

Samples submitted are often not representative of the bulk. It must be stated that hundreds of samples reach this Branch every year that are too small for any accurate determination, or without name and address of sender.

When a larger sample arrives it contains in nearly every case weed seeds not present in the small pinch first received. With such senders it is no uncommon occurrence for the bulk delivered to the merchant to be much worse than the sample forwarded to the Department.

Such practices result in little if any reliance being put on the majority of samples forwarded by farmers to merchants for purposes of sale, and forces such merchants to suggest that a sample be first sent to the Department for examination. This, of course, is quite fair to the straight grower, and gives a chance for the merchant to draw a sample from the bulk delivered, and have same examined and compared with the grower's statement. In many cases the delivery is not up to sample; there are other known low-down tricks that must not be mentioned or it might be the means of suggesting their more frequent use.

Let us, therefore, consider the best course to be adopted by the sender of any sample, which, of course, must be drawn from goods in the sender's actual possession, care being taken to make all samples truly representative of the bulk.

To enable this to be done satisfactorily they should be drawn alternatively from the top, middle, and bottom of the bags, the proportion of bags to be sampled being as follows:—

1 to 20 bag lots—Sample should be drawn from every bag.

21 to 40 bag lots—Sample should be drawn from not less than 21 bags.

41 to 60 bag lots—Sample should be drawn from not less than 28 bags.

61 to 80 bag lots—Sample should be drawn from not less than 32 bags.

81 to 100 bag lots—Sample should be drawn from not less than 36 bags.

100 to 200 bag lots—Sample should be drawn from not less than 40 bags.

200 bags and over—Sample should be drawn from not less than 20 per cent.

If, when drawing samples, it is observed that great variation occurs in the bulk, two or more samples should be obtained, each representing bags whose contents are similar.

After the sample has been drawn as above indicated it should be emptied out on to a large piece of paper, thoroughly mixed, and then a quantity not less than the prescribed weight for such samples should be drawn for purposes of forwarding to the Seed Laboratory. A duplicate sample should be kept for reference.

In the Seed Laboratory, great pains are taken to ensure absolute accuracy of work. It, therefore, follows that all this care is wasted unless the person forwarding samples for examination takes some trouble to ensure that the samples drawn truly represent the bulks they are obtained from. The minimum weight of each sample should be as hereunder set out:—

WEIGHT OF SAMPLES.

Kind of Seed.	Weight Required.
In the case of seeds containing weed seeds or other foreign ingredients, not less than double the weight mentioned should be sent.	
Mauritius Beans, Peanuts	2 lb.
Barley, Beans, Cowpeas, Maize, Oats, Peas, Rice, Rye, Tares, Wheat	1 lb.
Canary, French Millet, Japanese Millet, Linseed, Lucerne, Prairie Grass, *Setaria Italica* (Foxtail Millet), *Sorghum Sudanense* (Sudan Grass), Sorghum, White Panicum	4 oz.
Paspalum dilatatum, Rhodes (*Chloris gayuna*), Rye Grass, *Phalaris tuberosa*, Cocksfoot, Couch, *Panicum antidotale*, Molasses Grass, &c.	2 oz.
Beet, Cabbage, Carrot, Onion, Parsnip, Radish, Tomato, Turnip, and Vegetable Seeds of like size	½ oz.
Vegetable Seeds in made-up packets	5 pkts.
Agricultural and Vegetable Seeds other than those indicated above	2 oz.

MARKING OF SAMPLES.

All samples must be plainly written on in ink, setting out the undermentioned particulars:—

(1) Name under which the seed was purchased, or is proposed to be sold;

(2) The number of bags from which the sample was drawn, and the number of bags in the whole consignment;

(3) The marks of identification, if any, on such bags;

(4) If the sender is not the actual grower, the name and address of the sender's supplier, with date of delivery.

(5) The name and address of the sender, with the date of sampling.

In the case of a merchant sending a sample, say, of *Sorghum sudanese* (Sudan grass), for which a fee of 2s. 6d. is payable, the sample should be marked in the following manner:—

SUDAN SEED.
Sample taken from 28 bags representing 51 bags
Branded H over S
Supplied by T. Atkins, Farmer, Oakview.
To H. Seed, Produce Merchant, Summertown.

When a farmer has grown some seed and desires that such seed should be examined, for which a fee of 2s. 6d. is payable, the marking, in ink, on the sample should be somewhat as follows:—

SAMPLE OF RHODES GRASS SEED.
Taken from 31 bags representing 57 bags
Grown 1934
by A. Chloris, Farmer, Gayana.

FREE EXAMINATION.

Assuming a farmer buys lucerne seed from his local storekeeper, and finds on delivery that the seed purchased contains weed seeds or is of poor colour, it is obvious that he would be well advised to have a sample examined at the Seed Laboratory, care, of course, being taken to make the sample truly representative of the bulk. The marking, in ink, on the actual package forwarded to the Department should therefore be somewhat as follows:—

SAMPLE OF 70 LB. LUCERNE SEED.
Purchased on the 20th June, 1934,
by B. Smithers, Farmer, Oakview,
from H. Seed, Produce Merchant, Summertown.
Sampled by W. Smithers on the day of delivery,
24th June, 1934.

Samples should be addressed as follows:—

Seed Sample for Examination.
Officer in Charge,
Seed Laboratory,
Department of Agriculture,
William Street,
Brisbane.

The sender's name and address and the particulars as before set out must be written in ink on the actual container.

Special care should be taken to securely fasten up the sample. The examination of samples received at the Laboratory that have been opened in transit is useless for any determination, as only a sample received intact can be taken as representing any bulk.

FEE OF 2s 6d.

A covering letter, enclosing the prescribed fee of 2s. 6d. per sample, should be forwarded with a letter advising of the sample's despatch.

FREE EXAMINATION.

It cannot be too widely known that the Seed Laboratory at Brisbane examines, free of charge, all samples representing seeds that farmers have purchased for their own sowing.

COMPLAINTS.

In case of any complaint regarding purity or germination the buyer should at once send a sample of the seed, marked with the particulars as before set out, together with a covering letter to the Department advising of the despatch of the sample, which will then be examined free of charge.

CERTIFICATES.

Unless the sender is careful to forward a truly representative sample, the certificate is valueless. Under no circumstances is it a guarantee by the Department of Agriculture as to the bulk, but a statement as to the condition of the sample at the time when such sample was examined.

EXAMINE GOODS ON THE DAY OF DELIVERY.

Both buyers and sellers are urged to examine all goods on the day of delivery, and when in doubt regarding any seeds, to write at once to the Department of Agriculture, Brisbane, in order that the matter may be at once investigated.

STOCK FOODS, 1934.

During the year under review 440 samples of stock foods were examined at the Laboratory. Out of this number, 160 represented samples of concentrates sent in under section 3 of the Stock Foods Acts, 12 samples were received from sellers for examination, and 29 from users.

The total number of samples given includes various grasses and clovers cut for analysis in pasture improvement experiments, also a considerable number of samples representing hay and chaff, received from the Chief Inspector of Stock, purporting to represent material that had caused the death of animals. In passing, it is well to state that most of the samples examined represented a fair average quality of lucerne and other chaffs, which inclines one to the opinion that the loss of stock must be attributed to other causes than the samples received for examination.

Although the Acts to regulate the sale of stock foods were passed nearly fifteen years ago, the general impression appears to be that those Acts are only concerned with the labelling of poultry foods and such mill by-products as bran and pollard.

It is evident from the deliveries to Roma Street Market that the requirements of the Acts and Regulations thereunder are not being fully complied with by the majority of farmers, although copies of the Regulations have from time to time been forwarded to the principal suppliers.

"*The Stock Foods Act of* 1919" gives a definition of hay which should be known to everyone selling or dealing in such material, such definition being—"Any dried or cured cereal, grass, or legume cut before complete ripeness and from which grain or seed has not been removed."

It will therefore be seen that hay is dried grass or other material cut before complete ripeness, not, as often happens, material practically consisting of straw with a few seed heads and occasionally seed or grain of the kind to which the majority of the crop purports to consist.

Hay chaff is defined as "hay or straw cut into short lengths."

The Regulations provide that when the amount of moisture in hay or chaff is in excess of 12 per cent. such amount should be declared on the invoice at the time of sale. It is also provided that in the case of maize grain the safe amount of moisture for storage is assumed to be 14 per cent. by weight, the Regulations providing that when the actual amount is more than 14 per cent. such amount should be declared on the invoice. In the case of grains and seeds other than maize a moisture of 13 per cent. is prescribed unless the actual amount is declared.

Samples received by this Branch from time to time from produce merchants indicate that some maize is offered for sale with a moisture content of over 20 per cent. Material of this character, it need hardly be stated, is not fit for storage. The Stock Foods Acts give power to prescribe by Regulations the foreign ingredients that may be in hay, straw, chaff, &c. In the case of hay, the material should consist of the kind of hay mentioned on the invoice or mentioned during the transaction; the proportion or amount of foreign material may consist of 10 per cent. by weight of any other kind of hay unless the actual amount is declared at the time of sale. In the case of lucerne hay and chaff, the ingredients may include grasses and herbage of non-deleterious character, but not more than 10 per cent. of such material unless it is declared to the buyer.

From time to time complaints are made regarding the weight of battens on lucerne hay in bales, and it was necessary some time since for a Regulation to be made making it an offence in the sale of lucerne in bales for the weight of battens to be in excess of one-tenth of the weight of the bale.

In the case of straw chaff, foreign ingredients are any chaff other than chaff made from the kind of hay or straw stated at the time of sale. Ten per cent. is allowed. If more is present, the same must be declared. The Regulations under the Act provide that all packages containing straw chaff, mixed chaff, and lucerne chaff shall be distinctly marked by the seller or person in possession of the same—in the case of straw chaff, with S.C., such letters being 2 inches in length, and in the case of mixed chaff, with the letters M.C., and in the case of lucerne chaff, with the letters L.U.C. and with the grower's initials and the name of the sending station in all cases.

In times of drought many complaints as to the quality of some materials are frequently made. As would be expected, in almost every case it is found that the original seller (in other words, the farmer who produced the material) did not make any attempt to comply with the requirements of the Act, as he was probably aware that the stencilling of his initials on the bags of so-called lucerne chaff would be detrimental to his future sales of such inferior material.

In the case of grains and seeds, whether whole or crushed, the Regulations provide that such grain or seeds must not contain more than 1 per cent. by weight of weed seeds, and not more than 5 per cent. by weight of any grains or seeds of any other kind of cultivated plants, unless the amount is actually declared to the buyer. The question is often asked as to what, if any, substances are prohibited under the Stock Foods Acts, in other words, if hay or chaff contains Noogoora burr, or lucerne contains Dodder, can such material be sold without being liable to proceedings?

A list of the prohibited foreign ingredients will be found in the preceding article dealing with seeds.

Each year a quantity of bird seed is imported from overseas; during the period under review four samples of *Panicum miliaceum,* eight of hemp, and three of bird rape arrived from Japan and Manchuria. In the absence of any definite Commonwealth Regulations, the method of examination adopted by this Branch (on samples forwarded by quarantine officers) is the standards for such material prescribed by the Regulations under the Queensland Stock Foods Acts, which, in the case of seeds or grain, prohibit the following foreign ingredients:—*Claviceps purpurea* (Ergot), plants, parts of plants, and seeds of *Cuscuta* spp. (Dodder), *Datura* spp. (Thorn Apple), *Ricinus communis* (Castor Oil Plant), *Jatropha* spp. (Physic Nut), *Papaver* spp. (Poppy), *Alternanthera achyrantha* (Khaki weed), *Agrostemma githago* (Corn Cockle), *Xanthium spinosum* (Bathurst burr), *Xanthium strumarium* (Noogoora burr), or any substance of whatever character in itself deleterious to the life or health of stock.

The proportion or amount of weed seeds other than those of a deleterious character must not exceed 1 per cent. by weight.

CONCENTRATED OR MIXED STOCK FOODS.

The Regulations under the Stock Foods Acts define concentrated or prepared stock foods as—Any stock-lick or mineral feed; also any calf foods, horse, cattle, sheep, and pig foods, poultry foods, and mashes, chick feeds, condimental stock foods, mixed bird seeds, parrot foods, any mixture of meals, or of whole grains or seeds; or meals made directly from lucerne hay, maize on the cob, or from any grain, seed, or material; also the following by-products:—Bran, pollard, linseed cake, or meal, peanut cake or meal, coconut oil cake or meal, cotton seed cake or meal, by-products of barley, maize, and rice, molasses feeds or meals, fish oils and meals, dried brewer's or distiller's grains, malt sprouts, blood meal, bone meal, meat meals, digester tankage, maize gluten meal or feed, maize-germ meal, dried skim milk, dried buttermilk.

In the making up of mixed stock foods, produce merchants and others have at their disposal material of little real value; therefore, the Regulations declare the following materials to be of low feed value:—Rice hulls, oat hulls, maize cobs, peanut shells, clipped oat refuse, cotton seed hulls, sweepings of mill floors, grain sheds, ship holds, and produce stores, ground screenings, damaged grain, ground straw.

It is also necessary by Regulation to define the amount of foreign ingredients that may be in any material—as before explained, in the case of moisture in maize and material other than lucerne in lucerne chaff, &c.

It is obvious that in the making up of a mixed food the seller has but a limited selection of materials to deal with; therefore it is necessary to define what is meant by meal. This, by the Regulations, means:—"Meal" shall consist of the ground or finely crushed product of the entire clean, sound grain, cereal, seed, or material of which such material purports to be made.

Sometimes the word "screenings" is used in connection with materials sold for feeding purposes. The word as defined by the Regulations means:—"The smaller imperfect grains and other foreign materials, having feeding value, separated in cleaning the grain, and sold whole, or ground, or crushed, and shall be free from any weed seeds, or substances of whatever character deleterious to the life or health of stock."

Before considering wheat meal, it is well to get a clear idea of the meaning of bran and pollard. Bran is defined as "the outer skin or coating of the wheat grain or berry, pure, and without admixture of any kind, obtained in the usual commercial milling process from wheat, from which there shall have been removed all impurities by cleaning and scouring," and pollard "shall consist of the products of the wheat grain or berry (other than flour or bran) obtained in the usual commercial milling process from wheat, from which there shall have been removed all impurities, and shall be of such fineness as to permit of 99 per cent. passing through a metal sieve perforated with round holes 1.5 mm. (one and a-half millimetres) in diameter."

We therefore see that both bran and pollard are the by-products of the wheat grain or berry, and without an admixture of any kind, obtained in the usual commercial milling process from wheat.

The following small tables set out the guaranteed crude protein, crude fat, and crude fibre, also the actual analysis by the Agricultural Chemist, of both bran and pollard now offered for sale by Queensland mills, or the agents for Southern mills.

For the purpose of comparison, a small table of the chemical analysis for the years 1925-28-31-34 is given for both bran and pollard.

Bran, A BY-PRODUCT OF MILLING WHEAT.

SAMPLES EXAMINED FOR PURPOSES OF THE STOCK FOODS ACTS.

Queensland Wholesale Seller.	Guaranteed by Seller or found on Analysis by Agricultural Chemist.	Moisture.	Crude Protein.	Crude Fat.	Crude Fibre.	Crude Ash.
		%	%	%	%	%
Barnes and Co. Pty., Ltd., Stanley Street, South Brisbane ..	*Guarantee* ..	..	*15.5*	*3.0*	*9.0*	..
	Found	10·1	15·5	3·3	9·1	5·7
Barnes and Co., Pty., Ltd., Warwick	*Guarantee* ..	..	*13·5*	*2·3*	*12·0*	..
	Found	10·4	13·5	2·7	8·9	5·2
The Brisbane Milling Co., Pty., Ltd., Stanley Street, South Brisbane	*Guarantee* ..	..	*14·7*	*2·6*	*11·0*	..
	Found	9·6	14·6	2·6	11·0	5·7
Dalby Milling Co., Pty., Ltd., Dalby	*Guarantee* ..	..	*16·0*	*2·5*	*11·0*	..
	Found	9·5	15·7	2·6	9·6	5·9
The Defiance Milling Co., Toowoomba	*Guarantee* ..	..	*15·0*	*2·0*	*11·0*	..
	Found	11·1	15·3	2·4	9·4	5·4
The Dominion Milling Co., Pty., Ltd., Stanley Street, South Brisbane	*Guarantee* ..	..	*14·7*	*2·7*	*11·0*	..
	Found	11·3	14·3	3·0	11·1	6·3
Gillespie Bros. (Q'ld.), Pty., Ltd., Albion, Brisbane	*Guarantee* ..	..	*14·0*	*2·5*	*12·0*	..
	Found	11·5	14·3	2·7	10·8	5·8
Johnson and Markwell, Roma Street, Brisbane	*Guarantee* ..	..	*14·0*	*2·5*	*10·0*	..
	Found	9·6	14·8	2·9	10·4	2·9

SUMMARY OF CHEMICAL ANALYSES FOR 1925–1928–1931–1934.

Year.	Average Moisture	Average Crude Protein.	Average Crude Fat.	Average Crude Fibre	Average Crude Ash.
	%	%	%	%	%
1925..	11·8	15·8	2·4	9·5	5·7
1928..	10·3	16·8	2·8	10·9	4·9
1931..	10·7	15·3	2·7	9·6	5·3
1934..	10·4	14·7	2·7	10·0	5·3

In the case of bran, it will be noted that the average analysis for the current year shows slightly more fibre and slightly more fat than the 1925 samples.

The average crude protein, however, of 14·7 per cent. does not compare favourably with the protein found for the 1925 period. Further, the protein content is considerably lower than that found in 1928.

Pollard, A BY-PRODUCT OF MILLING WHEAT.

SAMPLES EXAMINED FOR PURPOSES OF THE STOCK FOODS ACTS.

Queensland Wholesale Seller.	Guaranteed by Seller or found on Analysis by Agricultural Chemist.	Moisture.	Crude Protein.	Crude Fat.	Crude Fibre.	Crude Ash.
		%	%	%	%	%
Barnes and Co., Pty., Ltd., Stanley Street, South Brisbane	*Guarantee*	..	*14·3*	*3·2*	*7·0*	..
	Found	10·4	15·4	3·2	3·6	2·6
Barnes and Co., Pty., Ltd., Warwick	*Guarantee*	..	*14·0*	*3·2*	*7·0*	..
	Found	11·9	14·5	2·8	4·3	3·1
The Brisbane Milling Co., Pty., Ltd., Stanley Street, South Brisbane	*Guarantee*	..	*13·0*	*2·5*	*10·0*	..
	Found	8·7	15·5	3·3	7·4	4·1
Dalby Milling Co., Pty., Ltd., Dalby	*Guarantee*	..	*16·5*	*3·5*	*7·0*	..
	Found	8·6	17·5	4·1	5·3	3·7
The Defiance Milling Co., Toowoomba	*Guarantee*	..	*15·0*	*3·0*	*7·0*	..
	Found	11·1	15·5	4·0	6·1	3·6
The Dominion Milling Co., Pty., Ltd., Stanley Street, South Brisbane	*Guarantee*	..	*14·5*	*3·3*	*8·0*	..
	Found	11·1	15·6	3·5	5·0	3·0
Gillespie Bros. (Qld.), Pty., Ltd., Albion, Brisbane	*Guarantee*	..	*14·3*	*3·2*	*7·0*	..
	Found	10·1	15·6	3·5	7·2	13·4
Johnson and Markwell, Roma Street, Brisbane	*Guarantee*	..	*14·0*	*3·0*	*7·0*	..
	Found	9·6	14·4	3·4	5·6	3·0

SUMMARY OF CHEMICAL ANALYSES FOR 1925–1928–1931–1934.

Year.	Average Moisture.	Average Crude Protein.	Average Crude Fat.	Average Crude Fibre.	Average Crude As
	%	%	%	%	%
1925..	11·4	16·3	3·4	4·9	3·5
1928..	10·1	16·0	3·7	6·5	3·6
1931..	10·6	15·6	3·5	5·3	3·2
1934..	10·2	15·5	3·4	5·5	4·5

In the case of pollard, the crude fibre is again higher than in 1925; crude fat the same, and crude protein less. Users of this mill by-product should carefully consider the analysis given; by so doing it should be possible to select the by-products from those mills giving a considerably high crude protein content and also showing a crude fibre content not in excess of the general average given.

In the following table will be found the principal straight meals now on the Queensland market. These meals include meals made from barley, wheat, maize, peanuts, lucerne, cottonseed meals, buttermilk preparations, linseed meal, and blood meals, &c. All of such products are required to be labelled, setting out the number of net pounds in the package, the distinguishing name or trade mark, the name and principal address of the Queensland wholesale seller, and the chemical analysis expressed in the following terms:—

(*a*) Minimum percentage of crude protein.
(*b*) Minimum percentage of crude fat.
(*c*) Maximum percentage of crude fibre.

It need hardly be pointed out that the fibre does not exist in meat and bone meal or other meatworks preparations. In some of these however, there is more than a trace of salt, which has to be declared to comply with the Regulations.

Many farmers purchase linseed oil meal and are often a bit confused as to what the material really is. Linseed meals can be divided briefly into three divisions—that produced by grinding or crushing commercially pure linseed, such material containing usually about 20 per cent. of crude protein, 36 per cent. of crude fat, and about 18 per cent. of crude fibre. Most of the material offered for sale under proprietary names is linseed oil meal, which is the residue resulting from the removal of oil from commercially pure linseed by the old process. This usually contains about 29 per cent. of crude protein, 5 to 8 per cent. of crude fat, and from 10 to 13 per cent. of crude fibre. The new process oil meal is one manufactured in a somewhat different manner, a solvent being used for extracting the oil. When an efficient process has been used it is possible to reduce the fat to practically 1 per cent., keeping the protein round about 30 per cent. with, however, a more or less corresponding increase in the amount of fibre. The material sold as new process in Australia, however, sometimes contains just over 4 per cent. of crude fat, therefore cannot rightly be claimed to differ greatly from the old process method.

Lucerne meal: although many poultry raisers purchase material under the name of lucerne meal, few of such buyers trouble to see if the material is labelled, setting out the percentage of crude protein and crude fibre.

Good lucerne meal should not have less than 15 per cent. of crude protein, and not more than 29 per cent. of crude fibre. Often the material contains more than 9 per cent. of ash; this usually means that it is composed of dust and sweepings as well as lucerne meal.

Blood meal, when properly prepared, has a very high protein content.

Meat meal, meat and bone meal, &c., are produced by our meatworks. When the material contains more than 10 per cent. of phosphoric acid, it should be sold as meat and bone meal; the same designation applies to digester meat and bone tankage; in all cases the buyer should look carefully at the label.

STOCK FOODS, 1934.

STRAIGHT MEALS PURPORTING TO COMPLY WITH SECTION THREE OF THE STOCK FOODS ACTS.

Figures in *italics* set out the seller's guarantee; the other figures give the analyses of the samples.

Sold under the name of—	Crude Protein.	Crude Fat.	Crude Fibre.	Salt.	Composition as Declared by Seller.	Queensland Wholesale Dealer.
	%	%	%	%		
Barley Meal—						
Barley Meal	*11·0*	*1·0*	*6·0*	..	Barley	Denham Pty., Ltd., Roma Street, Brisbane
	11·6	2·2	4·3	..		
Red Comb Barley Meal	*10·0*	*2·0*	*6·3*	..	Barley	Poultry Farmers' Co-op. Society, Ltd., Roma Street, Brisbane
	12·9	2·9	6·3	..		
Blood Meal—						
Borthwick's Moreton Dried Blood	*75·0*	..	..	..	Blood	Thomas Borthwick and Sons (Australasia) Ltd., Eagle Street, Brisbane
	77·7					
Dried Blood	*78·0*	..	..	..	Blood	Queensland Meat Industry Board, Brisbane Abbattoir, Brisbane
	77·4	..	..	..		
Taylor's Champion Dried Blood	*76·0*	..	..	..	Blood	Charles Taylor and Co., Roma Street, Brisbane
	77·6	..	..	..		
Buttermilk Preparations—						
Jacaranda P.D.B. Dried Buttermilk Powder	*35·0*	*4·0*	..	..	Buttermilk	The Queensland Farmers' Co-op. Association Ltd., Booval
	39·8	4·9	..	..		
Red Comb Buttermilk Protein	*68·0*	*10·0*	..	..	Buttermilk	Poultry Farmers' Co-op. Society Ltd., Roma Street, Brisbane
	68·6	9·5	..	..		
Coconut Meal and Cake—						
Eta Brand Coconut Meal	*18·0*	*9·0*	*9·0*	..	Made from Coconut	Denhams Pty. Ltd., Roma Street, Brisbane
	19·6	7·4	9·2	..		
Key Coconut Meal	*19·0*	*6·0*	*11·1*	..	Made from Coconut	Lever Bros. Ltd., Charlotte Street, Brisbane
	19·1	9·3	10·6	..		
Sunlight Oil Cake	*16·5*	*9·0*	*11·0*	..	Made from Coconut	ditto
	18·3	9·1	9·6			
Cotton Seed Meal—						
B.A.C.A.L. Cotton Seed Meal	*35·0*	*5·0*	*20·0*	..	Made from Decorticated Cotton Seed Meal and contains 15 per cent. of added Cottonseed Hull Bran	Queensland Cotton Board, Whinstanes, Brisbane
	41·8	6·9	10·0	..		
B.A.C.A.L. Decorticated Cotton Seed Meal	*40·0*	*6·0*	*15·0*	..	Made from Decorticated Cotton Seed	ditto
	45·3	8·1	7·8	..		
B.C.C. Cotton Seed Oil Meal	*25·0*	*4·0*	*30·0*	..	Made from Decorticated Cotton Seed Meal and containing 40 per cent. of added Cotton Seed Hull Bran	Brisbane Cotton Seed Stock Foods Co., Bowen Street, Brisbane
	35·7	5·9	15·4	..		
Hibiscus Cotton Seed Oil Meal	*25·0*	*4·0*	*30·0*	..	Made from Decorticated Cotton Seed Meal and containing 40 per cent. of added Cotton Seed Hull Bran	Queensland Pastoral Supplies Pty., Ltd., Bowen Street, Brisbane
	36·1	6·3	17·0	..		
Hibiscus Special Grade Cotton Seed Oil Meal	*35·0*	*5·0*	*20·0*	..	Made from Decorticated Cotton Seed Meal and containing 15 per cent. of added Cotton Seed Hull Bran	ditto
	37·3	5·4	11·5	..		
Linseed Meal—						
Linseed Meal	*19·0*	*36·0*	*11·5*	..	Meal obtained by grinding or crushing commercially pure linseed	R. W. Thurlow and Co. Ltd., Wharf Street, Brisbane
	20·5	37·0	17·5	..		
Linseed Oil Meal (old process)—						
Barnes' Linseed Meal	*26·0*	*8·0*	*12·0*	..	Residue resulting from the removal of oil from commercially pure linseed	E. J. Lowis, 436-438 Queen Street, Brisbane
	28·9	8·7	9·5	..		
Meggitt's Linseed Oil Meal	27·0	6·0	13·0	..	Residue resulting from the removal of oil from commercially pure linseed	Corser and Co., Pty., Ltd., Ellena Street, Maryborough
	29·8	5·8	10·0	..		
Linseed Oil Meal (new process)—						
Halmeg Linseed Oil Meal	*26·0*	*0·6*	*15·0*	..	Residue resulting from the removal of oil from commercially pure linseed	Denham's Pty., Ltd., Roma Street, Brisbane
	30·8	4·3	12·4	..		
Lucerne Meal—						
Denham's Lucerne Meal	*15·0*	*1·2*	*30·0*	..	Lucerne Hay	Denham's Pty., Ltd., Roma Stree Brisbane
Red Comb Lucerne Meal	*15·0*	*1·2*	*30·0*	..	Lucerne Hay	Poultry Farmers' Co-op. Society Ltd , Brisbane
Maize Meal—						
Maize Meal	*9·5*	*3·8*	*3·0*	..	Maize	Henry Dean and Sons, Pty., Ltd., Roma Street, Brisbane
	11·9	5·4	2·6	..		
Maize Meal	*9·5*	*3·5*	*4·0*	..	Maize	Denham's Pty., Ltd., Roma Stree , Brisbane
	10·8	4·6	2·9	..		
Red Comb Maize Meal	*10·0*	*3·5*	*3·5*	..	Maize	Poultry Farmers' Co-op Society Ltd., Roma Street, Brisbane
	10·2	4·0	2·3	..		

STOCK FOODS, 1934.

STRAIGHT MEALS PURPORTING TO COMPLY WITH SECTION THREE OF THE STOCK FOODS ACTS.

Figures in *italics* set out the seller's guarantee ; the other figures give the analyses of the samples.

Sold under the name of—	Crude Protein.	Crude Fat.	Crude Fibre.	Salt.	Composition as Declared by Seller.	Queensland Wholesale Dealer.
	%	%	%	%		
Meat and Bone Meal—						
Borthwick's Moreton Mebo Meal	*54·0* 49·7	*10·0* 10·8	.. ..	.. ..	Meat and Bone	Thomas Borthwick and Sons (Australasia) Ltd., Eagle Street, Brisbane
Borthwick's Moreton Protein Meal	*52·0* 51·6	*10·0* 10·1	.. ..	.. ..	Meat and Bone	ditto
Meat Meal	*65·0* 64·1	*15·0* 13·6	.. ..	*4·0* ..	Meat	Queensland Meat Industry Board, Cannon Hill, Brisbane
Protein Meal	*68·0* 67·2	*10·0* 10·1	.. ..	*4·0* 2·5	Meat and Bone	ditto
Red Comb Protein Meal, No. 1..	*65·0* 66·2	*18·0* 16·0	.. ..	.. ..	Extract and residue of meat	Poultry Farmers' Co-op Society Ltd., Roma Street, Brisbane
Red Comb Protein Meal, No. 2	54·0 52·2	*10·0* 8·8	.. ..	.. ..	Meat and Bone	ditto
Peanut Meal—						
Eta Brand Peanut Meal (Decorticated)	*48·0* 48·9	*1·5* 1·6	*6·0* 4·6	.. ..	Decorticated Peanuts	Denhams Pty., Ltd., Roma Street Brisbane
Wheat Meal—						
Red Comb Wheat Meal ..	*10·2* 10·2	*1·5* 1·4	*3·5* 1·8	.. ..	Wheat	Poultry Farmers' Co-op. Society, Ltd., Roma Street, Brisbane
Wheat Meal	*13·0* 13·3	*1·4* 1·6	*3·0* 2·8	.. ..	Wheat	Denhams Pty., Ltd., Roma Street, Brisbane
Fish Oil—						
Cod Oil	..	..	..		Cod Oil	John Irving and Sons, London Works Mayne, Brisbane

The use of cod liver oil appears to be somewhat on the increase as an ingredient in various stock foods. Undoubtedly, true cod liver oil produced from the livers of cod fish is of great value. Buyers, however, should distinguish such a product from the ordinary cod oil which means oil extracted from cod fish. Also, there is the ordinary fish oil which is got from any fish that is found in sufficient quantities and low enough in price. Although no definite pronouncement can be made as to the value of shark oil and other such products, buyers should fully realise that the true cod liver oil, which is rich in vitamins, might well be used to meet any deficiency of vitamins that may exist. Such deficiency, however, probably would not be met by the use of oils, other than the true cod liver oil referred to.

The frequent references to fish meal indicate that in the near future some such product will be offered for sale within this State in commercial quantities. The following notes, therefore, may assist merchants and others who intend taking up this material for sale as straight fish meal or to include it in mixtures. In the first place, fish meal could be described as a product obtained by drying and grinding or otherwise treating waste parts of fish, to which no other matter has been added.

In Australia it does not at present appear that we have such quantities of fish to offer for this purpose.

When we get north of the Equator and reach the cold waters of the North Pacific, there are undoubtedly, possibilities that may encourage the production of a fish meal suitable for feeding purposes.

Those who have not had experience in the use of this meal at present seem to be unaware that there are two distinct types of fish meal, the white fish meal which is made from the flesh of non-oily fish, such as cod, hake, plaice, haddock, skate, &c.; and ordinary fish meal or fish residue, which is obtained by the treating of any waste oily fish such as herring, cod liver residue and other offals of a like nature. In some European countries it is the accepted practice to distinguish between the two types, by stating that a white fish meal must not contain more than 6 per cent. of fat and 4 per cent. of salt.

There is always a statement in circulation that if any kind of foodstuff prepared from fish is used in pig feeding there will be a fishy flavour in the carcase. It is now held that not the slightest sign of a taint need be feared, if white fish meal made from the heads, bones, &c., of white fish is used. Unfortunately, most fish meal offered is fit only for use as a fertilizer. This, however, may be bought in the belief that it is the same as white fish meal.

In an article published in London during March, 1932, by the Feeding Stuffs Journal, reference is made to experiments on a wide scale that were carried out by the Rowett Institute with results that demonstrate that white fish meal, fed in a proper manner, imparted no taint or smell to the milk of cows or to the flesh of poultry or pigs.

It is known that some Japanese merchants have been in touch with the Chamber of Commerce at Townsville and are prepared to supply white fish meal of satisfactory quality—also fish meal suitable for fertilizer. Merchants therefore desiring to obtain such supplies would do well to communicate with the Townsville Chamber of Commerce, also to fully realise that the tainting by fish meal is likely to occur if any other than white fish meal is used.

In the table setting out the names of the mixed concentrated or prepared stock foods it will be noted from the third column that such foods include a proportion of the straight meals already explained by the previous table, with, in some cases, a slight addition of mineral matter.

MIXED, CONCENTRATED OR PREPARED STOCK FOODS, PURPORTING TO COMPLY WITH SECTION THREE OF THE STOCK FOODS ACTS.

Figures in *italics* set out the seller's guarantee ; the other figures give the analyses of the samples.

Sold under the name of	Crude Protein.	Crude Fat.	Crude Fibre.	Salt.	Composition as Declared by Seller.	Queensland Wholesale Dealer.
	%	%	%	%		
Calf Foods—						
Denham's Calf Food	*15·0* 20·1	*5·0* 5·0	*7·0* 4·9	.. ..	Wheat Meal, Pollard, Oat Meal, Barley Meal, Maize Meal, Linseed Meal, Dried Blood, Anise Oil, Cod Oil	Denhams Pty. Ltd. Roma Stree Brisbane
Farmers' Calf Food	*22·6* 27·4	*5·2* 5·4	*5·0* 4·4	.. ..	Milk Solids, Pollard, Linseed Meal with ½ per cent. of Aniseed and Whiting	The Queensland Farmers' Co-op. Asso Ltd. Booval
Nooma Calf Food	*12·3* 14·3	*4·3* 4·2	*2·8* 5·7	.. ..	Linseed, Wheat, Maize, Barley, Pollard, Whiting, Aniseed Oil, Cinnamon, Salt	Siemon Pty. Ltd. Roma Street Bri bane
Red Comb Calf Food	*18·0* 18·4	*4·0* 2·8	*5·5* 5·8	.. ..	Bran, Wheat Meal, Linseed, Maize, Meat and Bone Meals, Buttermilk, Cod Liver Oil, Ground Sulphur, Iron, Epsom Salts, Lime, Salt, ½oz. Potassium Iodide to the ton	Poultry Farmers' Co-op. Society Ltd Roma Street Brisbane
Kaf-O-Vite	*13·0* 14·7	*10·0* 13·0	*8·0* 7·4	..	Sterilised Bone, Lime and the by-products of Rice and Linseed and also contains flavouring matter	Webster and Co. Pty. Ltd. Mary Stree Brisbane
Chick Food—						
Chicken Mixture	*13·0*	*2·5*	*5·0*	..	Maize, Wheat, Peas, Barley, Oats ..	Addis Bros., Roma Street, Brisbane
Denham's Chick Food	*14·0*	*2·0*	*4·5*	..	Wheat Kibbled, Maize Kibbled, Peas Kibbled, Rolled Oats	Denham, Pty., Ltd., Roma Street, Bri bane
Extra Special Chick Food	*11·5*	*2·5*	*6·0*	..	Wheat, Peas, Maize, Barley, Millet, Oats	Siemons, Pty., Ltd., Roma Street, Bri bane
McCartney's Special Chick Food	*12·5*	*3·8*	*6·0*	..	Maize, Oat, Wheat, Linseed, Pea Meals and Millet Seeds	McCartney and Sons, Stanley Stree South Brisbane
Thorpe's Extra Special Chick Food	*11·0*	*2·0*	*5·0*	..	Kibbled Wheat, Maize, Peas, Maize Gluten Meal, Rolled Oats, and Biscuit Grit, made from Wheat Products and Meat and Bone meal	E. C. Chambers and Co., Edward Stree Brisbane
Dairy and Pig Foods—						
Red Comb Dairy Food	*17·3* 18·0	*3·1* 3·1	*8·5* 5·6	*1·0* 0·3	Pollard, Bran, Barley, Linseed, Meat and Bone Meals, Buttermilk, Ground Sulphur, Iron, Epsom Salts, Lime and Potassium Iodide	Poultry Farmers' Co-op. Society, Ltd Roma Street, Brisbane
Red Comb Pig Food	*13·7* 13·2	*2·0* 2·4	*5·4* 5·1	*0·5* 0·2	Barley Meal, Meat, Bone Meal, Charcoal, Lucerne Meal, Cod Liver Oil, Ground Sulphur, Iron, Epsom Salts, Lime, and Potassium Iodide	ditto
Laying and Growing Mashes—						
Chook Growing Mash	*18·0* 17·7	*3·0* 3·7	*9·0* 7·6	*1·0* 0·8	Pollard, Bran, Maize, Lucerne, Linseed, Wheat, Meat and Bone Meals, Buttermilk, Sulphur, Charcoal, Iron Sulphate, Cod Liver Oil, Salt	Queensland Stock and Poultry Food Ltd., Roma Street, Brisbane
Denham's Breeders Mash	*17·0* 16·5	*4·7* 2·7	*8·5* 7·8	*1·5* ..	Wheat Meal, Barley Meal, Lucerne Meal, Bran, Pollard, Buttermilk, Protein, Bone Flour, Meat Meal, Salt	Denham's Pty., Ltd., Roma Stree Brisbane
Denham's Growing Mash	*18·0* 20·4	*4·5* 4·6	*6·0* 5·8	*1·0* 0·3	Wheat Meal, Bran, Pollard, Barley Meal, Rice Meal, Maize Meal, Linseed Meal, Peanut Meal, Dried Buttermilk, Meat, Bone and Blood Meal, Maize By-Product, Sulphur, Salt	ditto
Denham's Laying Mash	*20·0* 21·8	*4·5* 4·4	*9·0* 7·5	*1·0* 0·7	Wheat Meal, Bran, Pollard, Barley Meal, Peanut Meal, Rice Meal, Maize Meal, Linseed Meal, Lucerne Meal, Dried Buttermilk, Maize By-Product, Meat, Bone and Blood Meal, Sulphur, Salt	ditto
Denham's X.L.N.T. Laying Mash	*16·0* 17·8	*2·8* 3·1	*11·0* 6·9	*1·0* 0·9	Bran, Pollard, Lucerne Meal, Meat, Bone and Blood Meal, Salt	ditto
Growing Mash	*18·0* 16·3	*4·0* 4·2	*5·0* 5·7	*4·0* 0·5	Bran, Pollard, Maize Meal, Meat Meal, Dried Buttermilk, Cod Liver Oil, Bone Meal, Salt	Addis Bros., Roma Street, Brisbane
Growing Mash	*15·0* 14·1	*4·5* 3·0	*5·0* 7·8	*1·5* 2·1	Barley Meal, Bran, Pollard, Meat Meal, Linseed Meal, Charcoal, Shell Grit, Flowers of Sulphur, Salt	Siemons, Pty., Ltd., Roma Street, Bri bane
H.D.S. Brand Laying Mash	*17·5* 18·0	*3·0* 3·9	*9·0* 5·9	*1·0* 0·7	Pollard, Bran, Maize, Lucerne, Barley, Meat and Bone Meals, Buttermilk, Sulphur, Charcoal, Iron Sulphate, Cod Liver Oil, Salt	Henry Dean and Sons, Pty., Ltd., Rom Street, Brisbane
Laying Mash	*20·0* 18·0	*3·0* 3·9	*11·0* 7·1	*1·5* 0·9	Wheat By-Products, Lucerne and Pea Meals, Meat Meal, Dried Milk, and contains Salt	Addis Bros., Roma Street, Brisbane
Laying Mash	*15·8* 14·0	*3·4* 3·0	*8·4* 7·2	*1·5* 1·3	Barley Meal, Bran, Pollard, Meat Meal, Linseed Meal, Charcoal, Shell Grit, Flowers of Sulphur, Salt	Siemons Pty., Ltd., Roma Street, Bris bane
Moregg Laying Mash	*17·0* 16·6	*2·0* 3·6	*6·0* 8·0	*0·7* ..	Bran, Pollard, Maize, Lucerne Meal; and Charcoal, Meat and Bone Meal, Bone Meal, Lime Stone, Sulphur, Iron, Iodine, Salt	McCartney and Sons, Stanley Street South Brisbane
Non-stop Growing Mash	*17·0* 16·3	*2·0* 2·8	*6·0* 5·8	0·7 ..	Oatmeal, Dried Buttermilk, Wheatmeal, Pollard, Bran, Maize Meal, Lucerne Meal, Linseed Meal, Charcoal, Meat and Bone Meal, Bone Meal, Lime Stone, Sulphur, Iron, Iodine, Salt	ditto
Red Comb All Mash	*14·0* 17·3	*2·2* 3·2	*7·0* 6·8	*0·5* 0·5	Wheatmeal, Maizemeal, Barleymeal, Bran, Linseed, Meat, Bone and Lucerne Meals, Charcoal and Salt	Poultry Farmers' Co-op. Society, Ltd., Roma Street, Brisbane
Red Comb Battery Mash	*18·0* 15·5	*4·0* 3·8	*7·0* 6·0	*0·2* 0·6	Bran, Pollard, Maize, Peas, Wheat, Linseed, Meat and Bone Meals, Cod Liver Oil, Charcoal, Buttermilk, Salt	ditto
Red Comb Growing Mash	*16·0* 15·4	*4·0* 4·8	*6·0* 7·4	*0·2* 0·5	Bran, Pollard, Maize, Barley, Pea, Wheat, Linseed, Meat and Bone Meals, Buttermilk, Charcoal, Salt	ditto
Red Comb Laying Mash	*17·0* 16·1	*4·0* 3·3	*9·0* 7·2	*0·5* 0·5	Barley, Pollard, Maize, Barley, Linseed, Cotton Seed, Lucerne, Meat and Bone Meals, Cod Liver Oil, Charcoal, Salt	ditto
Skinner's Allegg	*38·0* 48·9	*8·0* 8·2	*7·0* 5·7	*5·0* 5·6	Meat, Bone, Blood, Cod Oil, Linseed Meal, Charcoal, Salt	ditto
Spur Laying Mash	*17·5* 19·3	*2·8* 3·8	*11·0* 7·6	*1·0* 0·5	Bran, Pollard, Lucerne Meal, Meat, Bone Meal, Sulphur, Charcoal, Iron Sulphate, Salt	Queensland Stock and Poultry Foods Ltd. Roma Street, Brisbane
Taylor's Champion Laying Mash Mixture	*21·0* 26·5	*3·0* 2·3	*6·0* 6·1	.. ..	Bran, Pollard, Sterilized Bone Meal, Dried Blood, Linseed Meal, Maize Meal, Lucerne Meal	Charles Taylor and Co., Roma Street Brisbane
Thorpe's All Mash	*13·0* 18·1	*4·0* 3·8	*9·0* 6·6	*1·0* 0·8	Bran, Pollard, Oat, Maize, Barley and Lucerne Meals, Meat Meal, Bone Flour, Linseed Oil Meal, Molasses, Sulphur, Calcium Carbonate and Salt	E. C. Chambers and Co., Edward Street Brisbane
Thorpe's Egglo	*40·0* 44·2	*7·5* 9·2	*5·0* 4·1	*5·0* 6·0	Meat, Linseed, Blood and Bone Meals, Calcium Carbonate, Sulphur, Salt	ditto

Sold under the name of	Crude Protein.	Crude Fat.	Crude Fibre.	Salt.	Composition as declared by Seller.	Queensland Wholesale Dealer.
Thorpe's Growing Mash	*15·0* 16·5	*4·0* 4·0	*9·0* 6·4	*1·0* 1·6	Bran, Pollard, Linseed, Rice, Barley, Wheat, Maize, Lucerne, and Meat Meals, Bone Flour, Molasses, Sulphur, Calcium Carbonate, Salt	E. C. Chambers and Co., Edward Street, Brisbane
Thorpe's Laying Mash	*14·0* 16·3	*4·0* 3·9	*9·0* 3·8	*1·0* 1·6	Bran, Pollard, Linseed, Rice, Wheat, Barley, Maize, Lucerne, and Meat Meals, Bone Flour, Molasses, Sulphur, Calcium Carbonate, Salt	ditto
Poultry Pellets—						
Thorpe's Poultry Pellets.. ..	*13·0* 18·3	*4·0* 3·2	*9·0* 6·1	*1·0* 0·7	Bran, Pollard, Oat, Maize, Barley and Lucerne Meals, Meat Meal, Bone Flour, Linseed Oil Meal, Molasses, Sulphur, Calcium Carbonate, Salt	ditto
Sheep Cubes—						
Thorpe's Kubettes for Sheep ..	*13·0* 17·1	*3·0* 3·6	*10·0* 9·1	*2·0* 2·0	Gluten Feed, Linseed Oil Meal, Barley, Wheat and Maize Meals, Bran, Rice Meal, Pollard, Meat and Bone Meals, Calcium Carbonate, Sulphur, Molasses, and Lucerne Meal, Salt	ditto
Miscellaneous—						
Osmond's Codlivine for all Stock	*17·0* 19·2	*17·0* 15·8	*8·0* 6·2	.. ..	Rice, Locust Beans, Linseed By-products, Peanut Meal, Fenugreek, Carraway, Cod Liver Oil, Peas, Liquorice Root, Soda Bicarbonate, and colouring matter	T. W. Moss and Co., Eagle Street, Brisbane
Osmond's Codlivine for Pigs ..	*18·0* 18·7	*16·0* 16·7	*8·0* 6·3	.. ..	Rice, Locust Beans, Linseed By-products, Peanut Meal, Fenugreek, Cod Liver Oil, Peas, Liquorice Root, Black Antimony, Soda Bicarbonate, Flowers of Sulphur	ditto
Osmond's Codlivine for Poultry	*17·0* 18·7	*17·0* 14·5	*8·0* 5·9	.. ..	Rice, Locust Beans, Linseed By-products, Peanut Meal, Fenugreek, Carraway, Cod Liver Oil, Peas, Liquorice Root, Soda Bicarbonate, and colouring matter	ditto
Whole or Crushed Grain Mixtures for Poultry—						
Denham's Scratch Grain.. ..	*See* Footnote (†) at end of Table.				Wheat, Cracked Maize, Oats, Barley, Peas	Denhams, Pty., Ltd., Roma Street, Brisbane
H.D.S. Chick Food					Maize, Wheat, Barley, Oats and Peas..	Henry Dean and Sons, Ltd., Roma Street, Brisbane
Red Comb Chick Feed ..					Oats, Wheat, Maize, Peas	Poultry Farmers' Co-op. Society, Ltd., Roma Street, Brisbane
Red Comb Nugrain					Oats, Wheat, Maize, and Barley.. ..	ditto
Taylor's Champion Grain Mixture..					Maize, Wheat, Barley, Oats, Rye and Sorghum	Charles Taylor and Co., Roma Street, Brisbane
Taylor's Champion Chicken Mixture					Kibbled Maize, Kibbled Wheat, Kibbled Peas, Kibbled Rolled Oats	ditto

† Foods that contain more than 20 per cent. by weight of crushed material that will pass a 2 m.m. seive, should be labelled in the manner prescribed for meals.

Figures in *italics* set out the seller's guarantee, the other figures give the analyses of the samples.

Before considering the bone meals, or other phosphates for feeding to stock, it should be understood that in the case of bones only sterilised bones should be used, and these only obtained from animals slaughtered for human consumption, not under any circumstances fertilizer bone dust. After the right kind of bone has been procured this should be sterilised by steam heat, that is, held for two hours at a temperature of 250 deg. Fahr. and then ground to a suitable degree of fineness. The Regulations made in 1928 only ask for 95 per cent. to pass through an aperture of one twenty-fifth of an inch, this low standard being fixed to meet the machinery then existing in the State. The sterilised bone meal of commerce usually contains 24 per cent. of phosphoric acid (P_2O_5), and permits of 95 per cent. passing through an aperture of one twenty-fifth of an inch. It is possible, however, by the process used in the manufacture of glues to produce sterilised bone meal of such degree of fineness as will permit of over 70 per cent. passing through an aperture of one-hundredth of an inch. The material has a phosphoric acid content of 32 per cent. Bone char, although black in colour, has P_2O_5 content of about 32 per cent., and such fineness as to permit of 70 per cent. passing through an aperture of one-hundredth of an inch.

It is also now possible to purchase dicalcic phosphate of such fineness as to permit of 99·8 per cent. passing through an aperture of one-hundredth of an inch, and 90 per cent. passing through an aperture of one one-hundred and fortieth of an inch, with a phosphoric acid content of 38 per cent.

Finely ground Nauru containing 37 per cent. P_2O_5 has a fineness when properly prepared nearly equal to that of dicalcic phosphate shown above.

The following table is self explanatory.

STRAIGHT "PHOSPHATES" FOR FEEDING PURPOSES.

Name of Stock Foods.	*Guaranteed by Seller or Found on Analysis.						Queensland Wholesale Dealers —
	Phosphoric Acid (P_2O_5)	Fineness.					
		Over $\frac{1}{25}$"	Through $\frac{1}{25}$" and Over $\frac{1}{80}$"	Through $\frac{1}{80}$ and Over $\frac{1}{100}$"	Through $\frac{1}{100}$" and Over $\frac{1}{120}$"	Through $\frac{1}{120}$"	
A.C.F. Sterilized Bone Meal ..	*24·0*	..	*95*	..	..	..	A.C.F. and Shirley's Fertilizers Ltd., Little Roma Street, Brisbane
	25·6		50		50		
Borthwick's Sterilized Bone Meal..	*24·0*	..	*95*	..	..	..	Thos. Borthwick Sons (Australasia), Ltd., 127 Eagle Street, Brisbane
	24·9	4	51		45	..	
Tri-Cal-Os Sterilized Bone Flour ..	*30·0*	..	*95*	..	..	..	Glues and By-products Pty., Ltd., 459 Adelaide Street, Brisbane
	31·6	1	33			†66	
Finely-Ground Sterilized Bone Meal	..	..	..	..	..	..	—as used in several Proprietary "Licks" on the Queensland Market
	32·5	..	11	17	12	60	
Bone Char	32·9	1	27		†72	..	ditto
Commonwealth Di-Calcic Phosphate	*38·0*	..	..	..	..	*90*	A.C.F. and Shirley's Fertilizers Ltd., Little Roma Street, Brisbane
	38·8	..	..	..	10	90	
Finely-Ground Nauru Phosphate..	*37·0*	..	..	..	*95*	..	Gibbs, Bright and Co., 406 Queen Street, Brisbane
	38·3	..	..	..	†96	..	
Shirley's Finely-Ground Nauru Phosphate Rock	*37·0*	..	..	..	*95*	..	A.C.F. and Shirley's Fertilizers Ltd., Little Roma Street, Brisbane
	37·0	..	..	..	†100	..	

*Figures in *italics* set out the seller's guarantee ; other figures give the analyses of the samples.

†Analyses of these samples were not carried further.

In the case of stock licks and mineral feeds, apart from the straight materials such as bone meals, rock phosphate, and bone char, the mixtures contain salt in various proportions. The Regulations require that the maximum per centage of salt be declared on the label. It is also provided that stock licks shall not contain particles of salt larger than three-sixteenths of an inch ; it need hardly be stated that salt should be straight from the works, not sweepings of sheds, butchers' shops, &c.

STOCK LICKS AND MINERAL FEEDS, 1934.

Stock Licks and Mineral Feeds Purporting to Comply with Section Three of the Stock Foods Acts.

Figures in *italics* set out the seller's guarantee, the other figures give the analyses of the samples.

Queensland Wholesale Seller.	Sold under the Name of—	Guaranteed by Seller or found on Analysis by Agricultural Chemist.	Minimum Phosphoric Acid P_2O_5.	Maximum Salt.	Potassium Iodide to the Ton.	Composition as Declared by Seller.
			%	%	Oz.	
A.C.F. and Shirleys Fertilizers Ltd., Little Roma Street, Brisbane	Kwik-Lik	*Guarantee*	*14·0*	*45·0*	..	Sterilized bone meal, ground rock phosphate, salt, magnesium. sulphate, flowers of sulphur, sulphate of iron, and molasses.
		Found	14·6	33·7	..	
Australian Disinfectant Co., Albert Street, Brisbane	Wagstaff's Medicated Stock Salt	*Guarantee*	*6·8*	*62·0*	*20*	Salt, sterilized bone meal, finely-ground Nauru phosphate, flowers of sulphur, sulphate of iron, bicarbonate of soda, molasses, bitter aloes, and oil of aniseed ; also 5 per cent. bran.
		Found	8·5	54·2	...	
Thomas Borthwick and Sons (Australasia) Ltd., Eagle Street, Brisbane	Moreton Bonolik for Stock	*Guarantee*	*12·0*	*45·0*	*33*	Sterilized bone meal, salt, powdered sulphur, iron, epsom salts, and potassium iodide.
		Found	13·1	42·6	..	
Ditto	Borthwick's Bomo Poultry Tonic	*Guarantee*	*12·0*	*35·0*	*33*	Sterilized bone meal, lime, salt, powdered sulphur, iron, epsom salts, and potassium iodide.
		Found	11·7	32·3	..	
Ditto	Moreton Salbolik	*Guarantee*	*8·0*	*66·0*	..	Sterilized bone meal and salt.
		Found	7·9	68·4		
Bowen Salt Ltd., Bowen	" Vis Vitæ " Stock Lick (White Label)	*Guarantee*	*3·0*	*79·0*	..	Salt, finely-ground Nauru phosphate, magnesium sulphate, flowers of sulphur, molasses.
		Found	4·3	76·6		
Ditto	" Vis Vitæ " Stock Lick (Red Label)	*Guarantee*	*13·5*	*50·0*	*4*	Salt, finely-ground Nauru phosphate, magnesium sulphate, flowers of sulphur, molasses.
		Found	12·4	52·6	..	
Dalgety and Co., Ltd., Elizabeth Street, Brisbane	Dalco Stock Lick 1	*Guarantee*	*16·5*	*35·0*	*16*	Sterilised bone meal, ground rock phosphate, salt, magnesium sulphate, flowers of sulphur, sulphate of iron, molasses and potassium iodide.
		Found	16·6	33·7	..	
Ditto	Prophylactic Blue Cross Stock Lick	*Guarantee*	..	*83·0*	..	Salt, sulphur, magnesium sulphate, ferrous sulphate, sodium bicarbonate, calcium sulphate, and molasses.
		Found	..	87·1	..	
Denhams Pty., Ltd., Roma Street, Brisbane	Iodolik—Mineral Supplement for Sheep—Dry Grass Formula	*Guarantee*	*13·0*	*30·0*	*20*	Sterilised bone meal, Nauru phosphate, salt, epsom salts, sulphate of iron, flowers of sulphur, peanut meal, molasses. and potassium iodide.
		Found	17·1	28·7	..	
Ditto	Iodolik—Mineral Supplement for Sheep—Concentrate	*Guarantee*	*24·0*	..	*30*	Sterilised bone meal, Nauru phosphate, epsom salts, sulphate of iron, flowers of sulphur, peanut meal, molasses, and potassium iodide.
		Found	29·5	..	..	
Ditto	Iodolik—Mineral Supplement for Cattle	*Guarantee*	*16·0*	*32·5*	*20*	Sterilised bone meal, Nauru phosphate, salt, epsom salts, sulphate of iron, flowers of sulphur, peanut meal, molasses, and potassium iodide.
		Found	17·2	35·1	..	
Ditto	Iodolike—Mineral Supplement for Sheep—Green Grass Formula	*Guarantee*	*17·0*	*32·5*	*20*	Sterilised bone meal, Nauru phosphate, salt, epsom salts, sulphate of iron, flowers of sulphur, peanut meal, molasses, and potassium iodide.
		Found	18·2	35·6	..	
Denhams Pty., Ltd., Roma Street, Brisbane	Iodolik—Mineral Supplement for Pigs	*Guarantee*	*12·0*	*15·0*	*20*	Sterilised bone meal, Nauru phosphate, carbonate of lime, epsom salts, glauber salts, flowers of sulphur, sulphate of iron, bicarbonate of soda, salt, charcoal, meat meal, and potassium iodide.
		Found	13·8	15·7	..	
Fertiliser Distributors Pty., Ltd., Little Roma Street, Brisbane	F.D.L. Nutro-Lik	*Guarantee*	*17·0*	*27·0*	*16*	Sterilised bone flour, salt, flowers of sulphur, sulphate of iron, epsom salts, ginger, gentian and columbae roots, oil of aniseed, potassium iodide.
		Found	20·1	27·1	..	
Ditto	F.D.L. Nutro-Lik, Grade D.H.	*Guarantee*	*12·5*	*30·0*	*5*	Sterilised bone, Nauru rock phosphate, salt, maize meal, flowers of sulphur, sulphate of iron, sulphate of magnesia, molasses, oil of aniseed, potassium iodide.
		Found	12·9	29·2	..	

STOCK LICKS AND MINERAL FEEDS, 1934.—*continued.*

STOCK LICKS AND MINERAL FEEDS PURPORTING TO COMPLY WITH SECTION THREE OF THE STOCK FOODS ACTS.

Figures in *italics* set out the seller's guarantee, the other figures give the analyses of the samples.

Queensland Wholesale Seller.	Sold under the Name of—	Guaranteed by Seller or found on Anaylsis by Agricultural Chemist.	Minimum Phosphoric Acid P_2O_5.	Maximum Salt.	Potassium Iodide to the Ton.	Composition as Declared by Seller.
			%	%	ozs.	
Hardie Trading Co., Ltd., Elizabeth Street, Brisbane	" Immunol " Block Licks	*Guarantee*	..	*97·5*	..	Salt and sulphur.
		Found	..	94·8	..	
T. W. Moss and Co., Eagle Street, Brisbane	Osmond's " Toneca " Stock Lick	*Guarantee*	*6·0*	*75·0*	*14*	Salt, sterilised bone meal, magnesium sulphate, carbonate of lime, sulphate of iron, powdered sulphur, and contains potassium iodide.
		Found	4·8	70·6	..	
McGlew and Co., Charlotte Street, Brisbane	" Century " Medicated Sheep Lick	*Guarantee*	*4·0*	*78·0*	..	Salt, ground sulphur, fish oil, eucalyptus oil, molasses, and bone char.
		Found	4·6	75·0	..	
Ditto	" Eucalick " Medicated Sheep Lick	*Guarantee*	*4·0*	*78·0*	..	Salt, ground sulphur, fish oil, eucalyptus oil, molasses, and bone char.
		Found	4·5	74·3	..	
T. McWilliam and Co., Ltd., Roma Street, Brisbane	R.A.M. Stock Lick	..	..	*100·0*	..	Salt.
New Zealand Loan and Mercantile Agency Co., Ltd., Eagle Street, Brisbane	Cooper's Medico	..	..	..	..	Ground Sulphur, Iron, Potassium Salts, Nicotine, Vegetable Spices, and Tonics.
Queensland Primary Producers' Co-operative Association, Ltd., Eagle Street, Brisbane	" Lix-All " Vitality Stock Lick	*Guarantee*	*10.0*	*50·0*	*2*	Bone char, salt, sulphur, sulphate of iron, epsom salts, molasses, wheat by-products, and potassium iodide.
		Found	9·4	51·5	..	
Queensland Pastoral Supplies Pty., Ltd., Bowen Street, Brisbane	Hibiscus Stock Lick	*Guarantee*	*14·5*	*40·0*	..	Salt, Nauru phosphate, magnesium sulphate, sulphate of iron, flowers of sulphur, and molasses.
		Found	20·8	31·1	..	
Ditto	Hibiscus Iodised Stock Lick	*Guarantee*	*14·5*	*40·0*	*16**	Salt, Nauru phosphate, sulphate of iron, flowers of sulphur, magnesium sulphate, molasses, and potassium iodide.
		Found	20·7	30·4	..	
Ditto	Hibiscus Salt Block Iodized	*Guarantee*	..	*99·0*	*3*	Salt and potassium iodide.
		Found	..	96·6	..	
Ditto	Hibiscus Salt Block Sulphurized	*Guarantee*	..	*97·0*	..	Salt and sulphur.
		Found	..	96·4		
Webster and Co., Pty., Ltd., Mary Street, Brisbane	Vita Lick Concentrated " D "	*Guarantee*	*14·0*	..	*16*	Sterilised bone, precipitated di-calcic bone phosphate, magnesium sulphate, flowers of sulphur, iron sulphate, potassium iodide, and contains 35 per cent. of meals derived from the by-products of rice and cocoa.
		Found	15·0	..	..	
Ditto	Vita Lick Concentrated " G "	*Guarantee*	*20·0*	..	*16*	Sterilised bone, precipitated di-calcic bone phosphate, magnesium sulphate, flowers of sulphur, iron sulphate, potassium iodide, and contains 15 per cent. of meals derived from the by-products of rice and cocoa.
		Found	21·8	..	..	
Ditto	Extra Strength Vita Lick Mixed " D "	*Guarantee*	*4·2*	*64·0*	*5*	Salt, sterilised bone, precipitated di-calcic bone phosphate, iron sulphate, magnesium sulphate, flowers of sulphur, potassium iodide, and contains 11 per cent. of meals derived from the by-products of rice and cocoa, and contains 4·5 per cent. of molasses.
		Found	4·1	62·3	..	

Webster and Co. Pty. Ltd.—*continued*	Extra Strength Vita Lick Mixed "G"	*Guarantee*	*6·2*	*64·0*	*5*	Salt, sterilised bone, precipitated di-calcic bone phosphate, magnesium sulphate, flowers of sulphur, iron sulphate, potassium iodide, and contains 5 per cent. of meals derived from the by-products of rice and cocoa, and also contains 4 per cent.of molasses.
		Found	6·0	65·5	..	
Ditto	Vita-Lick Mixed "D"	*Guarantee*	*2·5*	*77·0*	*3*	Salt, sterilised bone, precipitated di-calcic bone phosphate, magnesium sulphate, flowers of sulphur, iron sulphate, potassium iodide, and contains 6·8 per cent. of meals derived from the by-products of rice and cocoa, and also contains 4 per cent. of molasses.
		Found	3·3	64·1	..	
Ditto	Vita-Lick Special Cattle Lick Concentrated "D"	*Guarantee*	*23·3*	..	*16*	Sterilised bone, precipitated di-calcic bone phosphate, magnesium sulphate, iron sulphate, potassium iodide, and contains 15 per cent. of meals derived from the by-products of rice and cocoa.
		Found	24.9	..	..	
Ditto	Vita-Lick Special Cattle Lick Mixed "D"	*Guarantee*	*5·3*	*73·0*	*3·6*	Salt, sterilised bone, precipitated di-calcic bone phosphate, magnesium sulphate, iron sulphate, potassium iodide, and contains 3·5 per cent. of meals derived from the by-products of rice and cocoa, and also contains 3 per cent. of molasses.
		Found	7·6	59·8	..	
Ditto	Vita-Lick Special Cattle Lick Mixed "G"	*Guarantee*	*6·0*	*73·0*	*3·6*	Salt, sterilised bone, precipitated di-calcic bone phosphate, iron sulphate, potassium iodide, and contains 3·7 per cent. of meals derived from the by-products of rice and cocoa, and also contains 3 per cent. of molasses.
		Found	6·1	60·1	..	
Ditto	Por-Co.-Vite	*Guarantee*	*12·0*	*35·0*	*46*	Salt, sterilised bone, carbonate of lime, magnesium sulphate, iron sulphate, and flowers of sulphur.
		Found	14·8	22·4	..	
Ditto	Chic-A-Vite—A Mineral Supplement for Poultry	*Guarantee*	*20·0*	..	*16*	Sterilised bone, precipitated di-calcic bone phosphate, magnesium sulphate, sulphate of iron, flowers of sulphur, potassium iodide, cod liver oil, and contains 16 per cent. of meals derived from the by-products of rice.
		Found	18·7	..	..	
Ditto	Carbofos Medicated Blocks (Black)	*Guarantee*	*2·7*	*82·0*	..	Salt, superphosphate, Nauru phosphate, calcium hydrate, bone char, sterilised bone, sulphate of iron, and magnesium sulphate.
		Found	5·0	74·2	..	
Ditto	Vita-Lick Medicated Blocks (White)	*Guarantee*	*1·5*	*86·0*	..	Salt, superphosphate, Nauru Phosphate, calcium hydrate, sulphate of iron, and magnesium sulphate.
		Found	2·2	82·5	..	
Ditto	Vita-Lick Mixed "G"	*Guarantee*	*3·8*	*77·0*	*3*	Salt, sterilised bone, precipitated di-calcic bone phosphate, magnesium sulphate, flowers of sulphur, iron sulphate, potassium iodide, and contains 3 per cent. of meals derived from the by-products of rice and cocoa, and also contains 3·5 per cent. of molasses.
		Found	4·1	70·8	..	

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* Indicates number of ounces in 2,000 pounds. A ton, except in the case of bran, pollard, and flour, means 2,240 pounds avoirdupois.

Late Registrations are indicated by the name of the Queensland Wholesale Seller being underlined.

FERTILIZERS, 1934.

A fertilizer within the meaning of the Queensland Fertilizers Acts is any substance or compound containing nitrogen, phosphoric acid, potash, or lime, manufactured, produced, or prepared in any manner, for fertilizing the soil or supplying nutriment to plants, also any excrement of animals or any natural substance or natural product which is used for fertilizing the soil or supplying nutriment to plants, provided the term does not include farmyard manure, stable manure, seaweed, or crude night soil.

The definition of fertilizer, it will be observed includes lime. For agricultural purposes the Act therefore covers burnt lime, slaked lime, processed lime, pulverised limestone, and any other form of lime used for application to the land.

Since the first of January, 1934, licenses under the fertilizers Acts were issued to 135 dealers, an increase of ten over last year's figures. The Acts require dealers to obtain each year a license before the thirty-first of January. Last year comment was made on the "old brigade" that invariably have to be written to several times. This year, by the first of February, eighty had obtained licenses, last year seventy-two; from first of February to thirty-first of March, thirty-nine licenses were issued as against thirty-seven last year; from the first of April to end of July, sixteen licenses were issued.

On the sale of any fertilizer, the dealer is required to give to the buyer an invoice certificate. It therefore follows that farmers and other buyers would be well advised never to accept delivery of any material unless they were in receipt of the invoice certificate, which should give particulars of the sale in the following manner:—

SPECIMEN INVOICE CERTIFICATE.

Invoice Certificate.

I, (Name and Address of Licensed Dealer), in the State of Queensland, Licensed Dealer under "*The Fertilizers Acts*, 1914 *to* 1916," hereby certify that the fertilizer this day sold, consigned, or forwarded by me to (Name and Address of Buyer) being a quantity of ...... tons ...... cwt. ...... qrs ...... lb., is known as (here insert name of fertilizer), and is marked with the figure, or trade mark or sign, following, that is to say—(*Trade Mark or Sign on bag*).

And I also certify that such fertilizer contains the following ingredients, in the proportion of the whole, set opposite thereto, in the form hereunder :—

......% Nitrogen as......Nitrate.
......% Nitrogen as Ammonium Sulphate.
......% Nitrogen as Blood, Bone, Flesh and Offal.
......% Phosphoric Acid—Water Soluble.
......% Phosphoric Acid—Citrate Soluble.
......% Phosphoric Acid as Bone.
......% Phosphoric Acid as......Rock Phosphate.
......% Potash as Chloride.
......% Potash as Sulphate.
......% Fine Material.
......% Coarse Material.

In the case of lime for fertilizing purposes :—

(*a*) Caustic Lime, or Burnt Lime, or Quick Lime—
......% Calcium Oxide (CaO).

(*b*) Mild Lime or Air-slaked Lime—
......% Hydrate of Lime ($Ca\ (OH)_2$).
......% Lime Carbonate ($Ca\ CO_3$).

(*c*) Agricultural Lime—
......% Lime Carbonate ($CaCO_3$).
......% Fine Material.
......% Coarse Material.

Dated at......this......day of......193...

(*Signature of Dealer*)......

In the case of fertilizers containing nitrogen, phosphoric acid or potash, in forms other than as above provided for, the percentages of such should be inserted, with the respective forms in which they occur.

Every bag of fertilizer sold should have attached thereto a plainly printed label clearly and truly certifying:—

1. The number of net pounds of fertiliser in the bag.
2. The figure, trade mark, or sign, under which the fertilizer is sold.
3. The chemical analysis, stating the percentages of nitrogen, phosphoric acid, and potash, and the forms in which they respectively occur.
4. The percentage of fine and coarse material should also appear on the label and invoice certificate for organic fertilizers, i.e., fertilizers such as the by-products of meatworks, bone mills, &c., such fertilizers not being water soluble.

In addition to the printed label affixed to each package of fertilizer, every dealer is required to legibly brand or stamp every package with a brand distinguishing and identifying all fertilizers sold by him, or under his name in Queensland.

LIME.

In the beginning of this article, it was pointed out that lime for agricultural purposes in the form of burnt lime, slaked lime, pulverised limestone, &c., came under the provisions of the Fertilizers Acts, and should be covered by an invoice certificate, plainly setting out the percentage of lime carbonate and the percentage of fine and coarse material, and in the case of air-slaked lime, the percentage of hydrate of lime, and lime carbonate. In the case of burnt lime (quick lime), the percentage of calcium oxide (CaO) is required to be given.

The value of lime depends greatly on the size of the particles. By the present regulations under the Fertilizers Acts, fine, in the case of lime, means particles smaller than one twenty-fifth of an inch. Repeated experiments by the Sugar Bureau definitely prove that the value of lime has a distinct relation to its degree of fineness. It therefore follows that a buyer would be well advised when buying any lime other than burnt lime, to ascertain from the seller the degree of fineness, and preference be given to limes containing more than 50 per cent. of material that would pass through an aperture of one-fortieth of an inch, which would mean a No. 20 I.M.M. screen.

Registered by the Undermentioned as Producers within the Meaning of the Fertilizers Acts and Regulations.	* Guaranteed by Producer or Found on Analysis.				
	Calcium Oxide Ca O	Calcium Hydrate Ca (OH)$_2$	Calcium Carbonate Ca CO$_3$	Fineness	
				Fine	Coarse
	%	%	%	%	%
BURNT LIME.					
A.C.F. and Shirleys Fertilizers Ltd., Little Roma Street, Brisbane— Burnt Lime	*85·0*	..	..	..	..
H. Ambrose, Ambrose— Ambrose, Burnt Lime	*90·0*	..	..	..	..
Crotty Lime Works, Ootann Siding, *via* Almaden— .. Burnt Lime	*96·0*	..	..	..	..
Michael Demchok, Mungana— Mungana Burnt Lime	*97·0*	..	..	..	..
Ryan Lime Co., Pty., Ltd., Townsville — Burnt Lime	*88·0*	..	..	..	..
Webb and Son, Reid River, Townsville— Burnt Lime	†*10·8*	*60·0*	*12·9*	..	..
	10·8	60·0	12·9	..	..
" PROCESSED " LIMES.					
A.C.F. and Shirleys Fertilizers Ltd., Little Roma Street, Brisbane— A. C. F. Hydrolime	..	*8·0*	*84·0*	*80*	*20*
	..	1·2	93·5	84	11
Australian Chemical Co., Ltd., Donkin Street, South Brisbane— Acco Agricultural Lime	..	..	*80·0*	*90*	*5*
	..	8·4	84·1	79	21
PULVERISED LIMESTONE.					
A.C.F. and Shirleys Fertilizers Ltd., Little Roma Street, Brisbane— Pulverised Limestone	..	..	*95·0*	*50*	*50*
	..	..	96·6	89	11
H. Ambrose, Ambrose— Ambrose Pulverised Lime	..	..	*95·0*	*90*	*10*
Breen and Olsen, Marmor— Agricultural Lime Carbonate	..	..	*95·0*	*85*	*15*
Crotty Lime Works, Ootann Siding, *via* Almaden— Pulverised Lime	..	..	*97·0*	*94*	*6*
LIME EARTH.					
Ryan Lime Co., Pty., Ltd., Townsville— Earthy Lime	..	..	*85·0*	*69*	*16*

*Figures in *italics* set out the Seller's Guarantee; the other figures give the analyses of the samples.

†Obviously a slaked " Burnt Lime."

Straight Fertilizers Containing Nitrogen Only.

Queensland is a large user of nitrogen, mostly in the form of sulphate of ammonia. Some of our supplies are obtained from the Southern States. Large quantities, however, are imported from England, such importations being synthetic sulphate of ammonia, or nitrogen from the air.

Sulphate of ammonia is usually guaranteed to contain 20·6 per cent. of nitrogen. Nitrate of soda is imported from Chile and also from England; most of the English importations representing a synthetic form of nitrate of soda. The usual guarantee for nitrogen from nitrate of soda is 15·6 per cent. Some consignments, however, may contain 16 per cent. It will therefore be seen that roughly sulphate of ammonia contains just over one-fifth of its total weight of nitrogen, and nitrate of soda approximately three-quarters or 75 per cent. of the nitrogen that would be in sulphate of ammonia. Both are quick acting fertilizers, the nitrogen being water soluble.

Registered by the Undermentioned as Producers within the Meaning of the Regulations.	*Guaranteed by Producer or Found on Analysis.	
	Nitrogen as—	
	Nitrate of Soda.	Sulphate of Ammonia.
	%	%
NITRATE OF SODA.		
A.C.F. and Shirleys Fertilizers Ltd., Little Roma Street, Brisbane—		
A.C.F. Nitrate of Soda	*15·6*	..
A.C.F. and Shirleys Fertilizers Ltd., Causeway, Townsville—		
A.C.F. Nitrate of Soda	*15·6*	..
Fertiliser Distributors Pty., Ltd., Little Roma Street, Brisbane—		
F.D.L. Nitrate of Soda	*16·0*	..
Webster and Co., Pty., Ltd., Mary Street, Brisbane—		
"Crown" Brand Nitrate of Soda	*15·5*	..
SULPHATE OF AMMONIA.		
A.C.F. and Shirleys Fertilizers Ltd., Little Roma Street, Brisbane—		
Sulphate of Ammonia	.. ..	*20·6* 20·9
A.C.F. and Shirleys Fertilizers Ltd., Causeway, Townsville—		
A.C.F. Sulphate of Ammonia	..	*20·6*
The Committee of Direction of Fruit Marketing, Turbot Street, Brisbane—		
Sulphate of Ammonia (Australian Gas Light Co.)	..	*20·5*
Fertiliser Distributors Pty., Ltd., Little Roma Street, Brisbane—		
Sulphate of Ammonia (Broken Hill Pty.)	..	*21·0*
General Fertilizers Ltd., 125 Adelaide Street, Brisbane—		
Sulphate of Ammonia (Australian Gas Light Co.)	..	*20·5*
G. F. Hudson, Innisfail—		
Sulphate of Ammonia (Australian Gas Light Co.)	..	*20·5*
Shepherd's Anvil Stores, Pty., Ltd., Mackay—		
Sulphate of Ammonia (Australian Gas Light Co.)	..	*20·5*
Webster and Co., Pty., Ltd., Mary Street, Brisbane—		
"Crown" Brand Sulphate of Ammonia	..	*20·0*

*Figures in *italics* set out the Sellers' Guarantee; the other figures give the analyses of the samples.

STRAIGHT FERTILIZERS CONTAINING PHOSPHORIC ACID ONLY.

Superphosphate is manufactured in Australia from Nauru and/or Ocean Island phosphates. This gives a product containing nearly 21 per cent. of water soluble phosphoric acid. The superphosphate usually sold in the United Kingdom and often referred to in the daily press contains approximately 14 per cent. of water soluble phosphoric acid. This means that the 14 per cent. quality would require 3 tons to equal 2 tons of the material made in Australia. Farmers frequently overlook that super. is usually sold with a guarantee of 20·5 per cent. water soluble phosphoric acid content, but is referred to by sellers as 22 per cent. Twenty-two per cent, represents the total phosphoric acid in the material. The 20·5 per cent., or in some cases may be 21 per cent., is the effective portion that will be readily available to a crop, and is one that concerns the buyer, when considering unit values. The actual price should be calculated only on the water soluble phosphoric acid content. At present, Queensland does not use sufficient super. to merit works being established within the State. Present indications, however, point to a greater use of super. in the wheat areas, which, with a gradual increase for other crops, would indicate that may be after five years, certainly within the next decade, Queensland's demands will merit the establishment of a factory to produce its own requirements, which at present are principally obtained from Port Kembla and Cockle Creek—both situated in New South Wales.

Registered by the Undermentioned as Producers within the Meaning of the Regulations.	* Guaranteed by Producer or Found on Analysis.				
	Phosphoric Acid (P_2O_5).			Fineness.	
	Water Soluble.	Citrate Soluble.	From Phosphate Rock.	Fine Material.	Coarse Material.
SUPERPHOSPHATE.	%	%	%	%	%
A.C.F. and Shirleys Fertilizers Ltd., Little Roma Street, Brisbane— Shirley's High-Grade Superphosphate	*20·5*	..	..	..	..
A.C.F. and Shirleys Fertilizers Ltd., Causeway, Townsville— Shirley's High-Grade Superphosphate	*20·5*	..	..	..	..
L. C. Dobbie, Cottonvale— Superphosphate	*20·5*	..	..	..	..
Fertiliser Distributors Pty., Ltd., Little Roma Street, Brisbane— Shirley's Superphosphate, 22 per cent.	*20·5*	..	..	..	..
"Sulphide" Superphosphate	*20·5*	..	..	..	..
Gibbs, Bright and Co., 406 Queen Street, Brisbane— "Sulphide" Superphosphate	*20·5* 21·9	.. ..	.. ..	.. ..	.. ..
G. F. Hudson, Innisfail— Superphosphate (Paton Burns)	*20·5* 22·0	..	.. ..	.. ..	.. ..
Shepherd's Anvil Stores, Pty., Ltd., Mackay— Superphosphate (Paton Burns)	*20·5*	..	..	..	..
The Summit Fruit Growers' Co-op. Association, Ltd., The Summit— Superphosphate (Paton Burns)	*20·5*	..	..	..	..
BASIC SUPER.					
A.C.F. and Shirleys Fertilizers Ltd., Little Roma Street, Brisbane— Shirley's Basic Super	..	*17·0*	..	..	..
A.C.F. and Shirleys Fertilizers Ltd., Causeway, Townsville Shirley's Basic Super	..	*17·0*	..	..	..
PHOSPHATE ROCK.					
A.C.F. and Shirleys Fertilizers Ltd., Little Roma Street, Brisbane— Shirley's Ground Phosphate Rock	..	..	*37·0*	*95*	*5*
J. L. Lindley, The Caves, *via* Rockhampton— Caves Phosphate	.. ..	.. ..	*17·0* 0·5	*58* 70	*37* 17

*Figures in *italics* set out the Seller's Guarantee ; the other figures give the analyses of samples.

STRAIGHT FERTILIZERS CONTAINING POTASH ONLY.

Potash is largely used in Queensland by canegrowers. Our supplies can now be imported from Palestine, Spain, and France. Spain produces both muriate (*Potassium chloride*) and sulphate (*Potassium sulphate*), and the Dead Sea area of Palestine is producing large quantities of muriate of potash. During the last year or so there has been a considerable increase in the tonnage of muriate of potash imported with a corresponding decrease in the tonnage of the sulphate, which is an indication that buyers are influenced more by the potash (K_2O) content than by the form in which it occurs. Sulphate of potash of standard quality usually contains 48 per cent. of K_2O (potash), and muriate (*Potassium chloride*) contains 50 per cent. of K_2O. Owing to the heavy costs of freight and long distances that fertilizers have to be carried in Queensland to reach the actual user, the concentrated forms are only used within this State; it not being an economic proposition to handle the lower grade potash salts which are so frequently mentioned in the daily Press, as a result of cutting out paragraphs relating to materials used in other countries.

Registered by the Undermentioned as Producers within the Meaning of the Regulations.	*Guaranteed by Producer or Found on Analysis.	
	Potash as	
	Sulphate.	Chloride.
	%	%
MURIATE OF POTASH.		
A.C.F. and Shirleys Fertilizers Ltd., Little Roma Street, Brisbane— A.C.F. Muriate of Potash	..	*50·0* 51·4
A.C.F. and Shirleys Fertilizers Ltd., Causeway, Townsville— A.C.F. Muriate of Potash	..	*50·0*
The Committee of Direction of Fruit Marketing, Turbot Street, Brisbane— Muriate of Potash	..	*50·0*
Muriate of Potash (Paton Burns)	..	*51·0*
Fertiliser Distributors Pty., Ltd., Little Roma Street, Brisbane— Muriate of Potash	..	*51·9* 50·4
General Fertilizers, Ltd., 125 Adelaide Street, Brisbane— G. F. Muriate of Potash	..	*52·0*
SULPHATE OF POTASH.		
A.C.F. and Shirleys Fertilizers Ltd., Little Roma Street, Brisbane— A.C.F. Sulphate of Potash	*48·0* 49·2	..
A.C.F. and Shirleys Fertilizers Ltd., Causeway, Townsville— A.C.F. Sulphate of Potash	*48·0*	..
Fertiliser Distributors Pty., Ltd., Little Roma Street, Brisbane— Sulphate of Potash	*48·6*	..
Webster and Co., Pty., Ltd., Mary Street, Brisbane— "Crown" Brand Sulphate of Potash	*50·0*	..

*Figures in *italics* set out the Seller's Guarantee; the other figures give the analyses of the samples.

ORGANIC FERTILIZERS.

THE PRODUCT OF BONE MILLS, MEATWORKS, AND BACON FACTORIES.

Blood, the product of meatworks, and sold in the form of dried blood, usually contains just over 12 per cent. of nitrogen, which is in the quickest available form of any of the organic fertilizers. Absolutely pure dried blood would only have a trace of phosphoric acid. Some samples analysed, show more than a trace, therefore an indication that bone occurs in some of the materials put on the market. Ordinary meatworks fertilizers, i.e., material that can be properly designated as blood and bone, varies considerably in both the nitrogen and phosphoric acid content. Usually the figures are approximately 5 per cent. or slightly more of nitrogen, and from 15 per cent. to 16 per cent. of phosphoric acid, which is in a form not readily available to plants.

Registered by the Undermentioned as Producers within the Meaning of the Regulations.	* Guaranteed by Producer or Found on Analysis.			
	Nitrogen as Blood, Bone, Flesh. and Offal.	Phosphoric Acid. From Bone.	Fineness.	
			Fine.	Coarse.
	%	%	%	%
DRIED BLOOD.				
Thomas Borthwick and Sons (Aust.) Ltd., Eagle Street, Brisbane—				
Moreton Dried Blood	*12·4*	..	*82*	*18*
Fertiliser Distributors Pty., Ltd., Little Roma Street, Brisbane—				
Dried Blood (N.S.W. State Abattoir)	*12·0*	..	*80*	*10*
Dried Blood (Q.M.I.B.)	*12·7*	..	*81*	*18*
	13·0	..	70	30
Queensland Meat Export Co., Ltd., 113 Eagle Street, Brisbane—				
Q.M.E. Meatworks Dried Blood—Ross River	*12·5*	*†2·1*	*80*	*16*
	12·5	2·1	80	16
Queensland Meat Industry Board, Cannon Hill—				
Dried Blood (Q.M.I.B.)	*12·5*	..	*65*	*34*
BONE DUST.				
A.C.F. and Shirleys Fertilizers Ltd., Little Roma Street, Brisbane—				
Runcorn Bonedust	*3·6*	*23·0*	*60*	*40*
	3·8	22·7	73	27
S. H. Francis, Wool Exchange, Brisbane—				
"Bonit" Bonedust	*3·1*	*20·1*	*73*	*27*
General Fertilizers, Ltd., 125 Adelaide Street, Brisbane—				
G. F. Bonemeal	*3·6*	*24·0*	*80*	*20*
	4·1	23·1	49	45
S. and W. Lyell, Gympie Road, Aspley—				
Aspley Bone Dust	*3·5*	*24·0*	*52*	*47*
	3·9	23·5	45	55
BLOOD AND BONE.				
A.C.F. and Shirleys Fertilizers Ltd., Little Roma Street, Brisbane—				
Blood and Bone (Darling Downs Co-op.)	*5·0*	*14·0*	*65*	*22*
	5·3	16·6	67	26
Blood and Bone Fertilizer (Gearin O'Riordan)	*5·0*	*15·0*	*60*	*40*
Meatworks Fertilizer (Q.M.I.B.)	*5·2*	*16·1*	*82*	*15*
	5·1	17·4	72	28
Shirley's Blood and Bone Fertilizer	*5·0*	*18·0*	*60*	*40*
Thomas Borthwick and Sons (Aust.), Ltd., Eagle Street, Brisbane—				
Moreton Fertilizer, No. 9	*6·0*	*15·4*	*80*	*19*
Moreton Fertilizer, No. 10	*5·0*	*17·5*	*85*	*14*
	4·8	19·2	75	21
The Committee of Direction of Fruit Marketing, Turbot Street, Brisbane—				
B.B. Manure "5 and 15" (Paton Burns and Co.)	*5·0*	*15·0*	*60*	*40*
B.B. Manure "6 and 16" (Paton Burns and Co.)	*6·0*	*16·0*	*60*	*40*
Blood and Bone Fertilizer (N.S.W. State Abattoir)	*7·0*	*9·0*	*60*	*40*
L. C. Dobbie, Cottonvale—				
Blood and Bone (Aberdeen)	*5·5*	*14·0*	*60*	*40*
Blood and Bone (Riverstone)	*5·2*	*15·0*	*60*	*40*
General Fertilizers, Ltd., 125 Adelaide Street, Brisbane—				
G.F. Meatworks Fertilizer	*6·0*	*13·5*	*80*	*20*
	6·5	13·7	73	27
Headrick, Ltd., Spence Street, Cairns—				
B.B. Manure "6 and 16" (Paton Burns and Co.)	*6·0*	*16·0*	*60*	*40*
	6·5	15·1	63	37
G. F. Hudson, Innisfail—				
B.B. Manure "5 and 15" (Paton Burns and Co.)	*5·0*	*15·0*	*60*	*40*
B.B. Manure "6 and 16" (Paton Burns and Co.)	*6·0*	*16·0*	*60*	*40*
S. and W. Lyell, Gympie Road, Aspley—				
Lyell's Fertilizer	*2·9*	*21·9*	*75*	*25*
	3·1	21·9	74	26
Queensland Co-op. Bacon Association, Ltd., Murrarie—				
"Atlas" Brand Fertilizer	*6·5*	*12·2*	*84*	*14*
Queensland Meat Export Co., Ltd., Eagle Street, Brisbane—				
Q.M.E. Meatworks Fertilizer—Plain Milled—Ross River	*5·4*	*18·1*	*82*	*15*
	5·4	18·1	82	15
Queensland Meat Industry Board, Cannon Hill—				
Meatworks Fertilizer (Q.M.I.B.)	*5·0*	*15·0*	*77*	*21*
Shepherd's Anvil Stores, Pty., Ltd., Mackay—				
B.B. Manure "5 and 15" (Paton Burns and Co.)	*5·0*	*15·0*	*60*	*40*
B.B. Manure "6 and 16" (Paton Burns and Co.)	*6·0*	*16·0*	*60*	*40*
The Summit Fruit Growers' Co-op. Association, Ltd., The Summit—				
B.B. Manure "5 and 15" (Paton Burns and Co.)	*5·0*	*15·0*	*60*	*40*

*Figures in *italics* set out the Seller's Guarantee; the other figures give the analyses of the samples.
†This Dried Blood contains an appreciable quantity of Phosphoric Acid.

In passing, it should also be noted that the value of bone dust definitely relates to the degree of fineness. Fine, in the case of bone dust within the meaning of the Regulations, is material that will pass through an aperture of one twenty-fifth of an inch. Experiments indicate that far quicker and better results can be obtained from bone dust that will pass through an aperature of one-fortieth of an inch or even smaller.

Mixed Fertilizers (Mechanical Mixtures).

A full list of the mixed fertilizers registered during the current year is given at the request of many purchasers and for the guidance of those making out returns for fertilizers that they have purchased.

It will be seen that the mechanical mixtures consist of the raw ingredients before dealt with in detail, and it should not be overlooked that the proportions of the constituents of mixed fertilizers vary from year to year.

Registered by the Undermentioned as Producers within the Meaning of the Regulations.	* Guaranteed by Producer or Found on Analysis.							
	Nitrogen as—		Phosphoric Acid.		Potash as—		Fineness.	
	Ammonium Sulphate.	Blood, Bone, Flesh, and Offal.	Water Soluble.	From Bone.	Sulphate.	Chloride.	Fine Material.	Coarse Material.
	%	%	%	%	%	%	%	%
A.C.F. and Shirleys Fertilizers Ltd., Little Roma Street, Brisbane—								
A.C.F. Bone and Super	..	*1·7*	*10·0*	*11·5*	..	..	*60*	*40*
B. and B. and Super	..	*2·7*	*10·0*	*7·0*	..	..	*75*	*25*
	..	3·2	9·8	8·4	..	..	64	36
A.C.F. No. 1	*2·0*	*3·0*	..	*13·0*	*8·0*	..	*75*	*25*
	2·3	3·4	..	13·2	8·2	..	73	26
A.C.F. B2	*10·2*	*1·4*	..	*8·0*	..	*5·0*	*75*	*25*
A.C.F. No. 3	*3·0*	*2·5*	*4·0*	*10·0*	..	*5·0*	*75*	*25*
	3·2	2·5	3·8	10·5	..	5·2	69	29
A.C.F. B3	*4·7*	*2·3*	*3·0*	*7·0*	..	*10·0*	*75*	*25*
	3·9	2·3	3·1	7·8	..	9·3	74	26
A.C.F. B4	*4·7*	*2·3*	*3·0*	*7·0*	..	*8·0*	*75*	*25*
A.C.F. No. 5	*1·5*	*2·0*	*4·0*	*8·0*	..	*12·0*	*75*	*25*
	1·6	2·1	3·8	8·9	..	13·8	70	29
A.C.F. " Three 6 "	*3·5*	*1·5*	*4·0*	*8·0*	*4·0*	*3·0*	*75*	*25*
	3·1	2·8	3·3	9·6	7·6		71	29
A.C.F. No. 8	..	*2·0*	*10·0*	*7·0*	*6·0*	..	*75*	*25*
	..	2·4	8·8	8·2	6·1	..	68	30
A.C.F. Threights 8 8 8	*8·0*	..	*8·0*	..	*8·0*	..	..	..
A.C.F. Trinine 9 9 9	*7·6*	*1·4*	..	*9·0*	..	*9·0*	*75*	*25*
A.C.F. Trinine 9 9 9 Sulphate	*7·6*	*1·4*	..	*9·0*	*9·0*	..	*75*	*25*
A.C.F. No. 12 (Muriate)	*3·5*	*2·0*	..	*10·0*	..	*15·0*	*75*	*25*
A.C.F. Special Mixture No. 12	*4·0*	*1·5*	..	*8·0*	..	*18·0*	*75*	*25*
A.C.F. Bean-Up Mixture	*2·0*	*2·0*	*13·0*	..	*5·0*	..	*75*	*25*
A.C.F. " Granite " Fertilizer	*4·0*	..	*12·0*	..	*10·0*	..	..	..
	4·2	..	10·5	..	10·2	..	..	..
A.C.F. Planting Mixture	..	*1·0*	*14·0*	*3·0*	..	*7·5*	*75*	*25*
A.C.F. Tobacco Mixture	*2·2*	*2·3*	*9·0*	*6·0*	*4·5*	..	*75*	*25*
Kwikgro Home Garden Fertilizer	*2·5*	*1·5*	..	*14·0*	*7·0*	..	*90*	*10*
Shirley's Q.5. Fertilizer	*4·0*	..	*12·0*	..	*10·0*	..	..	..
	4·4	..	12·5	..	8·8	..	..	..
Shirley's 7 7 7 Fertilizer	*7·0*	..	*7·0*	..	*7·0*	..	..	..
Shirley's No. 8 Fertilizer	*4·1*	..	*16·4*	..	..	..	..	..
	4·1	..	17·5	..	..	..	..	..
Shirley's No. 9 Pasture Fertilizer	*7·0*	..	*13·6*	..	..	..	..	..
Shirley's Fertilizer No. 11 Mixture	*2·0*	..	*15·5*	..	*4·0*	..	..	..
Shirley's " Howes " Mixture (Meatworks Base)	*6·5*	*2·5*	..	*7·0*	*11·0*	..	*71*	*26*
Shirley's " Tropic " Fertilizer	..	*6·0*	..	*10·0*	*7·0*	..	*75*	*25*
	..	5·4	..	11·2	10·4	..	78	22
A.C.F. and Shirleys Fertilizers Ltd., Causeway, Townsville—								
A.C.F. Bone and Super	..	*1·7*	*10·0*	*10·0*	..	..	*80*	*20*
A.C.F. B. and B. and Super	..	*2·7*	*10·0*	*7·0*	..	..	*80*	*20*

*Figures in *italics* set out the seller's guarantee ; the other figures give the analyses of the samples.

Registered by the Undermentioned as Producers within the Meaning of the Regulations.	* Guaranteed by Producer or Found on Analysis.							
	Nitrogen as—		Phosphoric Acid.		Potash as—		Fineness.	
	Ammonium Sulphate.	Blood, Bone, Flesh, and Offal.	Water Soluble.	From Bone.	Sulphate.	Chloride.	Fine Material.	Coarse Material.
	%	%	%	%	%	%	%	%
A.C.F. Planting A1	..	*1·7*	*9·5*	*7·5*	..	*7·5*	*80*	*20*
A.C.F. Planting B1	*2·0*	*2·0*	*7·0*	*9·0*	..	*5·2*	*80*	*20*
	2·1	1·8	6·6	10·9	..	5·7	56	41
A.C.F. Tobacco A1	..	*1·9*	*15·0*	..	*4·8*	..	*80*	*20*
A.C.F. B2	*10·2*	*1·4*	..	*8·0*	..	*5·0*	*80*	*20*
	9·9	1·3	..	9·3	..	5·9	77	22
A.C.F. B3 Extra	*5·5*	*1·5*	*4·7*	*5·3*	*5·0*	*5·0*	*80*	*20*
	5·1	1·6	3·9	6·4	10·9		68	30
A.C.F. B3 Muriate	*5·5*	*1·5*	*4·7*	*5·3*	..	*10·0*	*80*	*20*
	5·5	1·6	3-7	6·3	..	11·2	75	24
A.C.F. B3 Sulphate	*5·0*	*2·0*	*3·3*	*6·7*	*10·0*	..	*80*	*20*
A.C.F. B4	*4·7*	*2·3*	*3·0*	*7·0*	..	*8·0*	*80*	*20*
A.C.F. B6	*1·0*	*1·7*	*11·0*	*6·5*	..	*2·5*	*80*	*20*
A.C.F. Trinine 9 9 9	*7·3*	*1·7*	*1·2*	*7·8*	..	*9·0*	*80*	*20*
A.C.F. Howes Mixture	*6·6*	*2·4*	..	*7·0*	*11·0*	..	*80*	*20*
A.C.F. Howes Mixture (with Muriate of Potash)	*6·6*	*2·4*	..	*7·0*	..	*11·0*	*80*	*20*
	7·4	2·9	..	8·8	..	11·4	70	30
A.C.F. Magnetic	*8·0*	*1·0*	*3·6*	*3·4*	..	*10·0*	*80*	*20*
A.C.F. Mareeba Mixture	*1·5*	*3·0*	*12·0*	..	*3·8*	*0·8*	*80*	*20*
A.C.F. Mossman N.P.K.	*2·0*	*1·7*	*6·0*	*7·3*	..	*10·0*	*80*	*20*
A.C.F. Pioneer Special Mixture	..	*5·1*	..	*12·6*	..	*5·0*	*80*	*20*
A.C.F. Planting Mixture	..	*1·0*	*14·0*	*3·0*	..	*7·5*	*80*	*20*
A.C.F. Tobacco Mixture 3 8 3	*1·0*	*2·0*	*8·0*	..	*2·5*	*0·5*	*80*	*20*
A.C.F. Tobacco Mixture 4 12 6	*†2·0*	*2·0*	*12·0*	..	*6·0*	..	*80*	*20*
	2·0	2·1	13·4	..	5·8	..	72	28
Shirley's Improved Drill Mixture	*3·0*	*1·0*	*5·5*	*4·5*	..	*13·0*	*80*	*20*
Shirley's "Organik" Fertilizer	*4·0*	*1·0*	*6·3*	*6·0*	..	*10·0*	*80*	*20*
Thomas Borthwick and Sons (Aust.), Ltd., Eagle Street, Brisbane—								
Moreton Fertilizer No. 1	..	*4·6*	..	*14·4*	*9·6*	..	*72*	*24*
Moreton Fertilizer No. 2	..	*5·3*	..	*16·2*	*4·8*	..	*81*	*15*
	..	5·2	..	14·8	6·2	..	71	25
Moreton Fertilizer No. 3	*2·0*	*3·4*	*3·3*	*10·6*	*7·6*	..	*80*	*17*
The Committee of Direction of Fruit Marketing, Turbot Street, Brisbane—								
C.O.D. 1 (Paton Burns)	*1·5*	*2·0*	*4·0*	*8·0*	..	*12·0*	*80*	*20*
C.O.D. 3 (Paton Burns)	*3·0*	*2·0*	*4·0*	*8·0*	..	*7·0*	*80*	*20*
C.O.D. 5 (Paton Burns)	*4·0*	..	*12·0*	..	..	*10·0*	..	..
Fertiliser Distributors Pty., Ltd., Little Roma St., Brisbane								
F.D.L. B.K.N. No. 1	*9·0*	*1·0*	*4·0*	*5·0*	..	*5·0*	*75*	*25*
	8·7	0·9	3·5	6·7	..	5·2	80	20
F.D.L. Direction No. 1	*1·0*	*2·5*	*4·0*	*8·0*	..	*12·0*	*75*	*25*
F.D.L. Tobacco No. 1	*2·2*	*2·3*	*5·5*	*8·5*	*3·5*	*1·0*	*75*	*25*
Special Mixture No. 1	*6·5*	..	*5·0*	..	..	*12·0*	*75*	*25*
F.D.L. No. 2	*5·8*	*1·2*	*3·0*	*6·0*	..	*3·0*	*75*	*25*
F.D.L. Virginia No. 2	*2·0*	*2·5*	*11·0*	..	*4·0*	*1·0*	*80*	*20*
Special Mixture No. 2	*5·0*	..	*10·0*	..	..	*12·0*	*75*	*25*

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† As Nitrate of Soda.

Registered by the Undermentioned as Producers within the Meaning of the Regulations.	* Guaranteed by Producer or Found on Analysis.							
	Nitrogen as—		Phosphoric Acid.		Potash as—		Fineness.	
	Ammonium Sulphate.	Blood, Bone, Flesh, and Offal.	Water Soluble.	From Bone.	Sulphate.	Chloride.	Fine Material.	Coarse Material.
	%	%	%	%	%	%	%	%
F.D.L. No. 3	*4·2*	*0·8*	*8·5*	*5·5*	..	*3·0*	*75*	*25*
F.D.L. Direction No. 3	*2·5*	*2·5*	*4·0*	*8·0*	*2·0*	*5·0*	*75*	*25*
F.D.L. Tobacco No. 3	†*2·0*	*2·0*	*12·0*	..	*6·0*	..	*75*	*25*
F.D.L. No. 4 Fish	*3·0*	*2·0*	*3·0*	*9·2*	..	*5·0*	*75*	*25*
	3·0	2·3	14·1			6·0	68	31
F.D.L. Tobacco No. 4	*1·0*	*2·0*	*13·0*	..	*6·0*	..	*75*	*25*
F.D.L. Mt. Etna No. 5	*3·0*	*2·0*	*4·0*	*9·2*	..	*7·0*	*75*	*25*
F.D.L. Direction No. 5	*4·0*	..	*12·0*	..	..	*10·0*	*75*	*25*
F.D.L. Mount Etna V.5.	*2·5*	*1·2*	*4·0*	*8·0*	..	*12·0*	*75*	*25*
	3·5	1·1	4·6	8·0	..	10·3	65	32
F.D.L. Mount Etna No. 6	*4·5*	*1·5*	*4·0*	*8·2*	..	*8·0*	*75*	*25*
	5·2	1·8	12·7		..	10·4	74	25
F.D.L. No. 7	*1·2*	*0·8*	*10·0*	*6·0*	..	*6·0*	*75*	*25*
F.D.L. Mount Etna No. 8	*6·1*	*1·9*	*2·2*	*8·0*	..	*8·0*	*75*	*25*
	5·9	1·8	2·6	9·1	..	8·2	70	30
F.D.L. Mount Etna No. 10	*7·8*	*1·2*	..	*7·0*	..	*11·0*	*75*	*25*
F.D.L. Fish 11	*2·2*	*1·5*	*7·2*	*7·0*	..	*3·8*	*75*	*25*
	2·8	1·5	6·1	8·7	..	4·6	65	35
F.D.L. No. 12	*3·4*	*1·6*	*4·0*	*6·5*	..	*12·0*	*75*	*25*
F.D.L. Coff's Cavendish Special	*4·8*	*1·7*	*1·0*	*10·5*	..	*10·0*	*75*	*25*
F.D.L. Nitrate Special	†*4·0*	*2·5*	..	*8·5*	..	*10·0*	*75*	*25*
F.D.L. Potpine	*2·7*	*2·3*	..	*9·5*	*11·0*	..	*75*	*25*
F.D.L. Ratoon	*3·5*	*3·0*	*2·0*	*6·7*	..	*11·0*	*75*	*25*
F.D.L. Special Planting Mixture	*1·5*	*2·0*	*7·0*	*9·0*	..	*5·0*	*75*	*25*
F.D.L. Volcanic	*3·0*	*1·0*	*2·8*	*6·2*	..	*18·0*	*75*	*25*
Mareeba Mixture (Organic Base)	..	*4·5*	*6·0*	*6·0*	*4·0*	*0·5*	*75*	*25*
General Fertilizers, Ltd., 125 Adelaide Street, Brisbane—								
G.F. 2	*1·5*	*2·5*	..	*13·0*	..	*7·0*	*80*	*20*
	2·2	2·6	..	14·9	..	6·7	55	38
G.F. 3	*4·5*	*2·5*	*1·5*	*10·5*	..	*9·0*	*80*	*20*
	4·4	2·6	0·2	13·0	..	8·9	68	30
G.F. 4	*1·5*	*2·5*	*6·0*	*11·0*	..	*6·0*	*80*	*20*
	1·3	3·2	1·6	15·2	..	6·0	62	37
G.F. 5	*2·0*	*3·0*	..	*13·0*	..	*9·0*	*80*	*20*
	2·8	2·9	..	15·2	..	9·1	57	43
G.F. 7	*6·8*	*2·2*	*1·0*	*8·0*	..	*10·0*	*80*	*20*
Headrick Ltd., Spence Street, Cairns—								
Tobacco Manure "2-15-4"	..	*2·0*	*9·5*	*5·5*	*4·0*	..	*80*	*20*
	..	2·3	9·0	6·9	4·2	..	63	37
Tobacco Manure "3-8-3"	*1·0*	*2·0*	*2·5*	*5·5*	*3·0*	..	*80*	*20*
	1·3	2·0	1·5	6·9	3·5	..	71	29
Tobacco Manure "3-10-3"	*1·0*	*2·0*	*4·5*	*5·5*	*3·0*	..	*80*	*20*
Tobacco Manure "4-12-6"	*1·5*	*2·5*	*5·5*	*6·6*	*6·0*	..	*80*	*20*
	1·8	2·7	4·6	8·4	6·4	..	57	27
G. F. Hudson, Innisfail—								
Q.3 (Paton Burns)	*4·5*	*2·5*	*2·1*	*7·9*	..	*10·0*	*80*	*20*
Q.4 (Cane Special) (Paton Burns)	*4·0*	*2·3*	*4·1*	*8·3*	..	*7·5*	*80*	*20*
Howe's Mixture (Paton Burns)	*6·7*	*2·3*	..	*7·0*	..	*11·0*	*80*	*20*
Planting Mixture (Paton Burns)	..	*1·0*	*11·0*	*6·0*	..	*7·5*	*80*	*20*
	..	1·1	8·7	8·3	..	8·4	52	32

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* Figures in *italics* set out the seller's guarantee; the other figures give the analyses of the samples.
† As Nitrate of Soda.

Registered by the Undermentioned as Producers within the Meaning of the Regulations.	* Guaranteed by Producer or Found on Analysis.							
	Nitrogen as—		Phosphoric Acid.		Potash as—		Fineness.	
	Ammonium Sulphate.	Blood, Bone, Flesh, and Offal.	Water Soluble.	From Bone.	Sulphate.	Chloride.	Fine Material.	Coarse Material.
	%	%	%	%	%	%	%	%
J. C. Hutton, Pty., Ltd., Roma Street, Brisbane—								
Hutton's Special Fertilizer	..	*5·0*	*3·8*	*11·0*	..	..	*70*	*22*
	..	4·8	3·2	15·1	..	..	57	41
Hutton's Special Complete Fertilizer	..	*4·5*	*3·4*	*9·8*	..	*5·0*	*70*	*22*
	..	4·7	2·3	12·6	..	5·6	59	30
Hutton's Special Sugar Fertilizer B.	..	*5·5*	..	*15·0*	..	..	*70*	*22*
Hutton's Special Sugar Fertilizer M.	*4·8*	*2·2*	*3·5*	*6·5*	..	*10·0*	*75*	*25*
	4·1	2·6	2·4	9·2	..	9·0	70	22
Hutton's Special Sugar Fertilizer N.	..	*1·8*	*8·0*	*10·0*	..	*7·5*	*75*	*25*
Hutton's Special Sugar Fertilizer P.	..	*4·5*	..	*13·5*	..	*7·5*	*70*	*22*
Hutton's Special Sugar Fertilizer S.	..	*2·0*	*10·0*	*11·0*	..	..	*75*	*22*
Shepherd's Anvil Stores, Pty., Ltd., Mackay—								
Q.3 (Paton Burns)	*4·5*	*2·5*	*2·1*	*7·9*	..	*10·0*	*80*	*20*
Q.4 (Cane Special) (Paton Burns)	*4·0*	*2·3*	*4·1*	*8·3*	..	*7·5*	*80*	*20*
B. and S. (Paton Burns)	..	*1·8*	*10·3*	*11·0*	..	..	*80*	*20*
B. B. and S. (Paton Burns)	..	*2·5*	*10·2*	*7·5*	..	..	*80*	*20*
Howe's Mixture (Paton Burns)	*6·7*	*2·3*	..	*7·0*	..	*11·0*	*80*	*20*
Planting Mixture (Paton Burns)	..	*1·0*	*11·0*	*6·0*	..	*7·5*	*80*	*20*
The Summit Fruit Growers' Co-op. Association. Ltd., The Summit—								
Summit No. 1 (Paton Burns)	*1·0*	*2·5*	*4·0*	*8·0*	..	*12·0*	*80*	*20*
Summit No. 2 (Paton Burns)	*2·5*	*2·5*	*4·0*	*8·0*	..	*7·0*	*80*	*20*
Webster and Co., Pty., Ltd., Mary Street, Brisbane—								
"Crown" Brand Special Complete Manure	*4·0*	..	*13·5*	..	*7·0*	..	..	..

* Figures in *italics* set out the seller's guarantee; the other figures give the analyses of the samples.

SYNTHETIC FERTILIZERS.

It is possible to produce in Europe synthetic fertilizers containing a very high percentage of nitrogen, phosphoric acid, and potash. The use of such concentrated material is not in much favour within this State, as it would only be possible to use such material if properly mixed on the user's own place with some form of filler. Probably in the future some such concentrates will be used by fertilizer dealers to bring up the percentages of some of the constituents of their mixtures.

Registered by the Undermentioned as Producers within the meaning of the Regulations.	* Guaranteed by Producer or Found on Analysis.	
	Nitrogen.	Phosphoric Acid.
	%	%
Abel, Lemon and Co., Pty., Ltd., Market Street, Brisbane—		
Floranid	*46·0*	
Barry and Roberts, Pty., Ltd., Queen Street, Brisbane—		
Floraphos (Phosphate of Ammonia)	*16·0*	*32·0*

PEST DESTROYERS, 1934.

The principal articles which may be called pest destroyers within the meaning of "*The Pest Destroyers Act of* 1923" and Regulations thereunder are as follows:—

Arsenates of Lead, Calcium, or Soda.
Arsenic (Pure and Commercial).
Arsenic pentoxide.
Arsenical Weed and/or Vermin Destroyers.
Benzol Emulsion.
Bordeaux Mixture.
Burgundy Mixture (or Copper Soda).
Cattle Dips.
Chlorate Weed Killers.
Copper Dusts (including Copper Carbonate).
Copper Sprays (wet spraying).
Copper Sulphate.
Cyanides of Soda, Potash, or Calcium.
Derris Preparations (including "Rotenone" or "Tuba Toxin" preparations).
Dusting Mixtures.
Formalin (or Formaldehyde).
Iron Sulphate.
Kerosene Emulsion.
Lime Sulphur.
Nicotine Compounds.
Paradichlorobenzene.
Paris Green.
Phenolic Preparations (for use on animals or plants).
Phosphorus Pest Destroyers.
Pyrethrum Powder.
Pyrethri Flores Extract.
Sheep Dips (Arsenical or Phenolic).
Sheep Preparations (Fly-Oils, &c.).
Sodium Fluoride.
Spraying Oils (White, Red, or other Oils).
Squill.
Strychnine.
Sulphur (Ground, Sublimed Flowers, Precipitated, Colloidal, and other preparations).
Tobacco Dust.
And any other material or preparation claimed to be useful as an insecticide or fungicide (in connection with animals or plants); and any other vermin destroyer or weed destroyer.

Buyers of Pest Destroyers.—The following information is for the benefit of purchasers of articles coming under the above headings.

Farmers and other buyers would be well advised never to accept delivery of any material unless it has affixed to every package a plainly printed label setting out:—

(1) The word "Poison" when required;

(2) The distinctive name of the pest destroyer;

(3) The net weight contained in the package or, in the case of liquids, the true volume content expressed in Imperial gallons or fractional parts thereof;

(4) The names of the active constituents and, when required by the Regulations, the percentage of such active constituents and/or the impurities contained therein;

(5) All directions for use of the pest destroyer;

(6) The name and address of the Queensland wholesale dealer.

The buyer should also receive an invoice setting out the prescribed warranty. Such warranty is the seller's guarantee as to the quality of the material. In the absence of such label and invoice it is obvious that the buyer should at once communicate with the Department of Agriculture, William street, Brisbane.

It cannot be too widely known that close on 300 pest destroyer samples are analysed annually by the Agricultural Chemist, and, as far as is possible, the results published in the Annual Report. The information published should be of value to farmers and others who are interested in the quality of the materials offered for sale and the maintenance of such quality by this and similar control and supervision.

Every pest destroyer sold by a dealer in Queensland must be registered by a responsible person—the Queensland wholesale dealer—either as manufacturer or agent for a manufacturer outside of this State. The enforcement of such registration and control of registered materials requires constant care and attention, not always realised by the man on whose behalf this work is carried out.

The word "Poison" in large red letters must be on the first line of all labels relating to pest destroyers containing substances of a poisonous nature. With all sales of pest destroyers to the value of five shillings or over an invoice must be given, such invoice setting out the name and quantity of the material sold, and a warranty guaranteeing that such material corresponds with the pest destroyer of the same name registered under the Pest Destroyers Act.

Standards are prescribed for a number of the pest destroyers named in the foregoing list, e.g.:—

Arsenate of lead must contain a minimum of 28 per cent. arsenic pentoxide (As_2O_5) and a maximum of ½ per cent. water soluble arsenic pentoxide. Most commercial pest destroyers sold under this heading easily comply with the above requirements—a minimum of 30 per cent. arsenic pentoxide would not cause any trouble to manufacturers. Arsenate of lead on account of its insoluble nature combined with its highly poisonous properties is not used during the late stages of growth of vegetables, its place being taken by less or non-poisonous materials, such as Derris preparations.

The following tables set out the materials registered during the current year, and the findings of the Agricultural Chemist :—

ARSENATE OF LEAD.

Name of Pest Destroyer.	Active Constituents as Declared on Label.		Found.	Queensland Wholesale Dealer.
		%	%	
A.C.F. Arsenate of Lead Powder	Arsenic pentoxide As_2O_5 .. .. Less than ½ per cent. water soluble As_2O_5	31·0 ..	31·7 0·2	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
Berger's Mercury Brand Arsenate of Lead (Powder)	Arsenic pentoxide As_2O_5 .. .. Not more than ½ per cent. water soluble As_2O_5 ..	30·0 ..	31·3 0·2	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
Berger's Mercury Brand Arsenate of Lead (Paste)	Arsenic pentoxide As_2O_5 (dry basis) .. .. Not more than ½ per cent. water soluble As_2O_5 (dry basis)	30·0 ..	31·5 0·2	ditto
Bickford's "Aero" Brand Arsenate of Lead Powder	Arsenic pentoxide As_2O_5 .. .. Not more than ½ per cent. water soluble As_2O_5 ..	31·5 ..	32·3 0·3	A. M. Bickford and Sons, Ltd. Tank street, Brisbane
Bickford's "Aero" Brand Arsenate of Lead Powder	Arsenic pentoxide As_2O_5 .. .. Not more than ½ per cent. water soluble As_2O_5 ..	31·5 ..	31·3 0·2	Buzacotts (Queensland) Ltd., 413 Adelaide street, Brisbane
Blyth's Blue Bell Arsenate of Lead Powder ..	Arsenic pentoxide As_2O_5 .. .. Not more than ½ per cent. water soluble As_2O_5 ..	30·0 ..	31·0 0·3	Queensland Fruitgrowers' Society Ltd., Makerston street, Brisbane
Challenge Arsenate of Lead (Powder)	Arsenic pentoxide As_2O_5 .. .. Not more than ½ per cent. water soluble As_2O_5 ..	30·0 ..	32·1 0·2	Neptune Oil Co., Ltd., 301 Ann street Brisbane
Cooper's Arsinette	Arsenic pentoxide As_2O_5 .. .. Not more than ½ per cent. water soluble As_2O_5 ..	30·0 ..	33·1 0·2	Queensland Fruitgrowers' Society, Ltd., Makerston street, Brisbane
"Lead-Spread"	Arsenic pentoxide As_2O_5 .. .. Not more than ·3 per cent. water soluble As_2O_5 ..	30·0 ..	30·1 0·2	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
Pinnacle Brand Arsenate of Lead	Arsenic pentoxide As_2O_5 .. .. Not more than ½ per cent. water soluble As_2O_5 ..	31·5 ..	30·9 0·2	Clou-Dust Spray Manufacturers, 152 Stanley street, South Brisbane
"Vallo" Arsenate of Lead (Powder)	Arsenic pentoxide As_2O_5 .. .. Not more than ½ per cent. water soluble As_2O_5 ..	32·0 ..	31·4 0·3	A. Victor Leggo and Co., Pty., Ltd., 72 Albert street, Brisbane
Vallo" Arsenate of Lead (Paste)	Arsenic pentoxide As_2O_5 (dry basis) .. .. Not more than ½ per cent. water soluble As_2O_5 (dry basis)	32·0 ..	31·6 0·4	ditto

ARSENATES OF CALCIUM AND SODA.

Arsenates of calcium and soda combine light metallic oxides with arsenic pentoxide, and consequently contain a much higher arsenical content than arsenate of lead. Calcium arsenate is occasionally used as a substitute for arsenate of lead in dusting mixtures—"lightness and higher concentration" being in its favour.

Only one of each of these "arsenates" has been registered during the current year. The following table shows the "guarantees" and "founds" and various other particulars :—

Name of Pest Destroyer.	Active Constituents as Declared on Label.		Found.	Queensland Wholesale Dealer.
		%	%	
"Vallo" Arsenate of Calcium	Arsenic pentoxide As_2O_5 .. .. Not more than 1 per cent. water soluble As_2O_5 ..	40·0 ..	40·9 1·5	A. Victor Leggo and Co., Pty., Ltd., 72 Albert street, Brisbane
"Vallo" Arsenate of Soda	Arsenic pentoxide As_2O_5	63·0	63·7	ditto

BORDEAUX, BURGUNDY, AND COPPER SPRAYS.

Bordeaux mixtures must contain 50 per cent. of copper sulphate and an equivalent quantity of lime. Materials that are mixtures of copper sulphate, and alkaline materials other than lime, are not Bordeaux mixtures—if the alkaline material used is a sodium compound, the material would be a copper soda or Burgundy mixture. Similarly, if the material contains copper compounds equivalent to appreciably more than 50 per cent. copper sulphate, it is not a Bordeaux mixture but a "copper spray." The difference between these three classes should be carefully noted—as a true Bordeaux mixture is often specified for a definite disease, and both Burgundy mixture and "copper sprays" are essentially different in composition to a Bordeaux.

Bordeaux and Related Mixtures.—The percentage of copper present in these preparations was the only figure ascertained for the current year. The three classes mentioned above (see also Departmental Report for 1933), however, still exist, and the presence of approximately 50 per cent. copper sulphate ($Cu\ SO_4{\cdot}5H_2O$), together with lime (in equivalent amount), should be verified before the name Bordeaux is accepted :—

Name of Pest Destroyer.	Active Constituents as Declared on Label.		Found.	Queensland Wholesale Dealer.
		%	%	
Bickford's "Aero" Brand Improved Bordeaux Powder	Crystallised copper sulphate $CuSO_4\ 5H_2O$ ..	50·0	*13·0	A. M. Bickford and Sons, Ltd., Tank street, Brisbane
Bickford's "Aero" Brand Improved Bordeaux Powder	Crystallised copper sulphate $CuSO_4\ 5H_2O$ ..	50·0	*12·9	Buzacotts (Queensland) Ltd., 413 Adelaide street, Brisbane
Bordeaux Mixture	Copper Cu	12·5	*12·4	James Macmillan and Co., 56 Charlotte street, Brisbane
Bordeaux Mixture Powder	Copper sulphate $CuSO_45H_2O$	50·0	*13·8	Taylors Elliotts and Australian Drug Co., Ltd., 154 Charlotte street, Brisbane
C.O.D. Bordeaux Mixture	Copper sulphate $CuSO_45H_2O$	50·0	*13·3	The Committee of Direction of Fruit Marketing, Turbot street, Brisbane
Cooper's Bordinette	Crystallised copper sulphate $CuSO_45H_2O$	50·0	*12·7	Queensland Fruitgrowers' Society, Ltd., Makerston street, Brisbane
Kwik-kure Bordeaux Powder	Crystallised copper sulphate $CuSO_45H_2O$	50·0	*12·7	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
Neptune Bordeaux Powder	Copper sulphate	50·0	*13·3	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
"Vallo" Dry Bordeaux	Copper sulphate $CuSO_45H_2O$	56·0	*13·8	A. Victor Leggo and Co., Pty., Ltd., 72 Albert street, Brisbane
"Vallo" Home-made Bordeaux (Blue Carton) ..	Copper sulphate $CuSO_45H_2O$ .. .. Prepared lime	75·0 25·0	74·7 †15·6	ditto
"Vallo" Home-made Bordeaux (Pink Carton) ..	Copper sulphate $CuSO_45H_2O$ .. .. Prepared lime	67·0 33·0	65·5 †20·1	ditto
Blair Bordeaux Mixture	Basic copper sulphate	80·0	*41·8	The Committee of Direction of Fruit Marketing, Turbot street, Brisbane

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* All figures shown in this column marked * are copper (Cu) percentages. For comparison of "guarantees" and "founds" shown above it should be oted that percentages of Copper Sulphate ($CuSO_45H_2O$) divided by four give (approximately) the equivalent percentages of copper (Cu).

† Calcium oxide (CaO) content of the prepared limes.

CATTLE DIP CONCENTRATES.

Cattle dip concentrates must be homogeneous and not settle into layers on standing, and when diluted in accordance with the instructions on the labels must give fluids containing one-fifth of 1 per cent. of arsenic trioxide (As_2O_3). Labels used in connection with same must show the active constituents—Arsenic (As_2O_3) (and may be cresols), and the dilution necessary to obtain fluids of the above arsenical strength.

The following table sets out the cattle dips registered during the current year, together with the various particulars concerning them.

It should be noted that cattle dip (and sheep dip) pastes nearly always give trouble, the chief fault lying in the fact that they are usually non-homogeneous; this, besides being a breach of the Regulations, makes it hard to obtain a representative sample of the material.

Name of Pest Destroyer.	Active Constituents and Rate of Dilution as Declared on Label.	Found.	Queensland Wholesale Dealer.
		%	
Liquid.			
Acco Liquid Cattle Dip	Arsenic and cresols (1 gallon concentrate to 300 gallons water)	*	Australian Chemical Co., Ltd Donkin street, South Brisbane
Alco 1–300 Liquid Cattle Dip	Arsenic and cresols (1 gallon concentrate to 300 gallons water)	*	Australasian Laboratories, corne Hope and Peel streets, Sout Brisbane
Alco Liquid Cattle Dip	Arsenic and cresols (1 gallon concentrate to 160 gallons water)	*	ditto
Australian Cattle Dip 1–320	Arsenic and cresols (1 gallon concentrate to 320 gallons water)	*	Australian Disinfectant Co., Albe street, Brisbane
Australian Cattle Dip 1–160	Arsenic and cresols (1 gallon concentrate to 160 gallons water)	*	ditto
Cooper's Tixol	Arsenic (1 gallon concentrate to 320 gallons water)	*	New Zealand Loan and M.A., Co Ltd., Eagle street, Brisbane
Cooper's Improved Cattle Dip	Arsenic (1 gallon concentrate to 125 gallons water)	*	ditto
"Harton" Cattle Dip Fluid	Arsenic and cresols (1 gallon concentrate to 320 gallons water)	*	Chemical and Tar Products, Pty Ltd., Lower Ann street, Brisban
"Harton Junior" Cattle Dip Fluid	Arsenic and cresols (1 gallon concentrate to 160 gallons water)	*	ditto
Hayes' Cattle Dip	Arsenic and cresols (1 gallon concentrate to 300 gallons water)	*	Hayes' Veterinary Co., Albe Square, Brisbane
"Hibiscus" Cattle Dip Fluid	Arsenic and cresols (1 gallon concentrate to 300 gallons water)	*	Queensland Pastoral Supplies, Ltd Bowen street, Brisbane
Kiltic Liquid Cattle Dip (Concentrated)	Arsenic and cresols (1 gallon concentrate to 300 gallons water)	*	Surgical Supplies Ltd., 246 Quee street, Brisbane
Kiltic Liquid Cattle Dip	Arsenic and cresols (1 gallon concentrate to 160 gallons water)	*	ditto
Kreeola Liquid Cattle Dip	Arsenic and cresols (1 gallon concentrate to 160 gallons water)	*	Australian Chemical Co., Ltd. Donkin street, South Brisbane
Little's Cattle Dip (Concentrated)	Arsenic and phenols (1 gallon concentrate to 300 gallons water)	*	Wilcox, Moffiin, Ltd., Longlan street, Brisbane
Little's Cattle Dip	Arsenic and phenols (1 gallon concentrate to 160 gallons water)	*	ditto
Maxdip	Arsenic and cresols (1 gallon concentrate to 320 gallons water)	*	Mactaggarts Co-op. Assn., Ltd., 7 Eagle street, Brisbane
Mactaggarts Improved Liquid Non-Scalding Cattle Dip	Arsenic and cresols (1 gallon concentrate to 160 gallons water)	*	ditto
Non-Ox Liquid Cattle Dip	Arsenic and cresols (1 gallon concentrate to 160 gallons water)	*	Australian Chemical Co., Ltd. Donkin street, South Brisbane
Queensland Cattle Dip	Arsenic and cresols (1 gallon concentrate to 160 gallons water)	*	Australian Machinery Co., Pty Ltd., 371 Adelaide street, Brisbane
Royal Cattle Dip (Concentrated)	Arsenic and cresols (1 gallon concentrate to 300 gallons water)	*	ditto
Royal Cattle Dip	Arsenic and cresols (1 gallon concentrate to 160 gallons water)	*	ditto
Standard Cattle Dip	Arsenic, phenols, and cresols (1 gallon concentrate to 160 gallons water)	*	Queensland Chemical and Distributing Co., 111 Elizabeth street Brisbane
"Uccol" Cattle Dip	Arsenic (1 gallon concentrate to 320 gallons water)	*	The Australian Estates and Mortgage, Co., Ltd., 35 Creek street Brisbane
United Cattle Dip	Arsenic (1 gallon concentrates to 160 gallons water)	*	ditto
United Cattle Dip	Arsenic (1 gallon concentrate to 160 gallons water)	*	United Chemical Co., Ltd., 15 Grey street, South Brisbane
"Vallo" Improved Fluid Cattle Dip	Arsenic and phenols (1 gallon concentrate to 180 gallons water)	*	A. Victor Leggo and Co., Pty., Ltd. 72 Albert street, Brisbane
Young's Improved Cattle Dip	Arsenic (1 gallon concentrate to 320 gallons water)	*	Sturmfels P. P. Co-op. Assn., Ltd. 138 Creek street, Brisbane
Paste.			
Thomas' Carbolised Cattle Wash	Arsenic (10 lb. concentrate to 175 gallons water)	†	James Campbell and Sons, Pty. Ltd., Creek street, Brisbane
Bar.			
Kiltic Cattle Dip (Bar Form)	Arsenic (2½ lb. "bar" to 50 gallons water)	*	Surgical Supplies Ltd., 246 Quee street, Brisbane
Powder.			
"Vallo" Powder Cattle Dip	Arsenic (5 lb. "powder" to 100 gallons water)	‡	A. Victor Leggo and Co., Pty., Ltd. 72 Albert street, Brisbane

The above cattle dips marked * when diluted in accordance with instructions on labels, gave fluids of standard strength. The liquid and paste di concentrates were found to be homogeneous, except those marked †.

‡ Below standard strength.

CHLORATE WEED KILLERS.

Chlorate Weed Killers.—No standard as yet controls these weed killers, which have as active constituent either sodium or calcium chlorate—strong oxidisers which interfere with the formation of chlorophyll in the leaves of the plant and cause "suffocation." The leaves of the plant must be covered by spraying—the material has no effect on the roots of the plant, and does not poison ground in the same way as arsenical preparations. The percentages of calcium and/or sodium chlorate should be shown on the label.

The following table shows the weed killers of this type registered during the current year:—

Name of Pest Destroyer.	Active Constituents as Declared on Label.		Found.	Queensland Wholesale Dealer.
		%	%	
Atlacide	Calcium chlorate	56·4	..	Buzacotts (Queensland) Ltd., 41 Adelaide street, Brisbane
Weedex	Calcium chlorate	22·0	..	A.C.F. and Shirley's Fertilizer Ltd., Little Roma street, Brisban

COPPER DUSTS.

Copper Dusts.—These materials, which in Queensland are "copper carbonates" must contain a minimum of 50 per cent. copper. A "fineness" standard is also set, this being carefully checked with samples received. Although various vendors recommend this material for use as a wet spray, it is used essentially in dusting mixtures and in the "pickling" of wheat as a preventative measure against "bunt," &c.

The following table shows "guarantees" and "founds" of the materials registered during the current year:—

Name of Pest Destroyer.	Active Constituents as Declared on Label.		Found.	Queensland Wholesale Dealer.
		%	%	
Bickford's "Aero" Brand Copper Carbonate ..	Copper (in the form of basic compound of copper) ..	50·0	*50·2	A. M. Bickford and Sons, Ltd., Tank street, Brisbane
Clou-Dust Copper Carbonate	Copper (as copper carbonates)	50·0	*54·1	Clou-Dust Spray Manufacturers, 152 Stanley street, South Brisbane
"Sickle" Brand Copper Carbonate	Copper (as carbonate and hydrate of copper) ..	52·0	*52·0	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
"Vallo" Anti-Bunt	Copper (as carbonate and hydrate of copper) ..	51·0	*51·3	A. Victor Leggo and Co., Pty., Ltd., 72 Albert street, Brisbane

* 95 per cent. passes $\frac{1}{200}$ inch sieve.

DERRIS PREPARATIONS.

Derris Preparations.—These Preparations have come into prominence in the last few years as a substitute for arsenate of lead during the late stages of growth of vegetables. No standard has yet been issued, but the active constituents are given on the various labels as per cent. Tubatoxin, or per cent. Rotenone, or per cent. Derris powder or Extract. It is obvious that as Derris root varies in quality, some method of standardising Derris preparations is necessary; this is claimed to be supplied by the method used in America of declaring the Rotenone content of the preparation—Rotenone being a definite, though complex chemical compound.

The success of this method, however, is not yet proved, and several wellknown manufacturers of these preparations claim that "Rotenone" does not cover the whole of the active principal; consequently they neglect this method.

The following table gives an idea of the various ways in which the active constituents are shown on the labels at the present time; the list is composed of materials registered during the current year:—

Name of Pest Destroyer.	Active Constituents as Declared on Label.		Found.	Queensland Wholesale Dealer.
		%	%	
Cooper's Katakilla	Tuba toxin and allied substances	3·0	..	New Zealand Loan and M. A. Co., Ltd., Eagle street, Brisbane
Cubor	Alcohol extractives of rotenone and pyrethrum ..	7·0	..	Buzacotts (Queensland) Ltd., 413 Adelaide street, Brisbane
K.F.	Rotenone (as pulverised derris)	1·0	..	Houghton and Byrne, T. and G Building, Albert street, Brisbane,
Pulvex Vermin Powder	Tuba toxin and allied substances	2·5	..	New Zealand Loan and M. A. Co.. Ltd., Eagle street, Brisbane

It should be noted that the undermentioned materials express the active constituents as a percentage of Derris root.

As before pointed out, not only does Derris root vary in quality, but age and method of the preparation has a great influence on the efficiency of the article.

Name of Pest Destroyer.	Active Constituents as Declared on Label.		Found.	Queensland Wholesale Dealer.
		%	%	
C.O.D. Derris Root Fluid Extract	Derris root	25·0	..	The Committee of Direction of Fruit Marketing, Turbot street, Brisbane
"Red Comb" Non-Poisonous Dusting Powder (for Poultry)	Powdered Derris root	30·0	..	Poultry Farmers' Co-op. Soc., Ltd., Roma street, Brisbane

DUSTING MIXTURES.

Dusting mixtures have no fixed standard, but are composed of ingredients, the chief of which are also pest destroyers controlled by standards under the Pest Destroyers Regulations. As these ingredients vary in quality, it is necessary to know the percentages of their active constituents. These active constituents are elements or their oxides, or definite chemical compounds capable of estimation by analysis. To illustrate what is meant, assuming you buy a dust containing arsenate of lead, copper carbonate, and an inert "filling" material: Both arsenate of lead and copper carbonate vary in quality, and although the label may read 20 per cent. arsenate of lead, and 20 per cent. copper carbonate, unless the percentages of arsenic pentoxide in the arsenate of lead and of copper in the copper carbonate are known, the guarantees on the label cannot be checked. Naturally the quality of the materials used is known only to the manufacturer who may use say 20 per cent. of arsenate of lead containing 28 per cent. arsenic pentoxide or 32 per cent. arsenic pentoxide. Consequently, the only real value of the dust can be found by ascertaining the percentages of arsenic pentoxide (as arsenate of lead) and of copper (as copper carbonate) present in the dust. A label therefore setting out the active constituents of the ingredients of a dust, worded in such a manner as to give accurate figures, is absolutely necessary where such ingredients cannot be represented by definite chemical formulae capable of accurate estimation by chemical analysis, when present in a mixture in conjunction with ingredients of the same type. A typical "dust" label giving the information that you should know would therefore read as follows:—

6 per cent. arsenic pentoxide (As_2O_5) as arsenate of lead.

10 per cent. Copper (Cu) as copper carbonate.

2 per cent. Nicotine as nicotine sulphate.

This label should also be marked "Poison" and show full directions for use, net contents, and the name and address of the Queensland wholesale dealer.

It should be noted that this method of declaration of percentages on labels is in use in connection with the sale of fertilizers, e.g.:—

Per cent. Nitrogen as sulphate of ammonia.

Per cent. Nitrogen as blood and bone.

Per cent. Phosphoric acid—Water soluble (as superphosphate).

Per cent. Potash as sulphate of potash.

If a farmer were to see declared on a fertilizer label, the percentage of blood and bone he would immediately ask for the nitrogen and phosphoric acid content of such a variable constituent; this, to a lesser degree should be the position with regard to dusting mixtures also. The farmer places value in the water soluble phosphoric acid content of his fertilizer—he should also place value in the arsenic pentoxide content of his dust (not forgetting that whereas water soluble phosphoric acid encourages the root action of plants, water soluble arsenic pentoxide present in amounts equivalent to more than ½ per cent. of the total arsenate of lead present, has a detrimental effect on plant life).

The manner of setting out the "true" active constituents in these mixtures is at present in the transitional stage, as may be seen by examination of the following list of materials registered during the current year. Ultimately amended regulations will require the percentages to be declared in a manner similar to that required by the Fertilizers Acts and Regulations, as explained above. An idea of this was also given under the heading of "Dusting Mixtures" in the Departmental Annual Report for 1933.

Name of Pest Destroyer.	Active Constituents as Declared on Label.		Found.	Queensland Wholesale Dealer.
		%	%	
A.C.F. Kwik-Kure Dusts—				
Blight Dust	Sulphur (as ground sulphur)	*9·8*	13·1	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
	Copper (as copper carbonate)	*10·4*	13·0	
Copper Sulphate Dust	Copper (as dehydrated copper sulphate)	*6·5*	..	ditto
Nicotine Dust	Nicotine (as nicotine sulphate)	*2·0*	..	ditto
Grub and Aphis Dust	Arsenic pentoxide (as arsenate of lead)	*7·7*	8·7	ditto
	Nicotine (as nicotine sulphate)	*2.0*	2·6	
Grub Dust	Arsenic pentoxide (as arsenate of lead)	*7·7*	..	ditto
40 per cent. Grub Dust	Arsenic pentoxide (as arsenate of lead)	*12·4*	..	ditto
Special Grub Dust	Arsenic pentoxide (as arsenate of lead)	*15·5*	..	ditto
Tomato and Melon Dust	Arsenic pentoxide (as arsenate of lead)	*7·7*	9·0	ditto
	Sulphur	*40·0*	..	
	Copper (as copper carbonate)	*5·2*	6·9	
Buzacott Dusts—				
All-in-One	Arsenic pentoxioe (as arsenate of lead)	*7·8*	7·5	Buzacotts (Queensland) Ltd., 413 Adelaide street, Brisbane
	Sulphur (as powdered sulphur)	*29·0*	34·0	
	Nicotine	*2·0*	1·6	
	Copper sulphate $CuSO_45H_2O$	*13·0*	11·8	
Banathrip Dust	Nicotine	*2·0*	..	ditto
Blight Stop Dust	Copper sulphate $CuSO_45H_2O$	*20·0*	*24·8	ditto
Caulicab No. 1 Dust	Arsenic pentoxide (as arsenate of lead)	*4·4*	..	ditto
	Nicotine	*1·2*	..	
Caulicab No. 2 Dust	Arsenic pentoxide (as arsenate of lead)	*7·8*	..	ditto
	Nicotine	*2·0*	..	
Cucumelon No. 1 Dust	Nicotine	*2·0*	..	ditto
	Sulphur (as powdered sulphur)	*39·0*	..	
Dormant Dust	Copper sulphate	*20·0*	..	ditto
Garden Guard Dust	Arsenic pentoxide (as arsenate of lead)	*4·4*	4·4	ditto
	Nicotine	*1·2*	0·9	
	Copper sulphate $CuSO_45H_2O$	*10·0*	8·6	
	Sulphur (as powdered sulphur)	*9·8*	12·2	
Grapemarto Dust	Sulphur (as powdered sulphur)	*39·0*	..	ditto
	Copper sulphate	*16·0*	..	
Nicoquick Dust (2 per cent.)	Nicotine	*2·0*	0·9	ditto
Nicoquick Dust (3 per cent.)	Nicotine	*3·0*	..	ditto
Potato Dust	Copper sulphate	*10·0*	..	ditto
	Sulphur (as powdered sulphur)	*29·0*	..	
	Arsenic pentoxide (as arsenate of lead)	*6·3*	..	
Strawberry Dust	Sulphur (as powdered sulphur)	*39·0*	..	ditto
	Copper sulphate	*16·0*	..	
Three-in-One Dust	Arsenic pentoxide (as arsenate of lead)	*6·3*	..	ditto
	Copper sulphate	*10·0*	..	
	Sulphur (as powdered sulphur)	*29·0*	..	
Special Tobacco Leaf Dust	Arsenic pentoxide (as arsenate of lead)	*15·7*	..	ditto
Tobacco Leaf No. 1 Dust	Arsenic pentoxide (as arsenate of lead)	*9·0*	..	ditto
Tobacco Leaf No. 2 Dust	Arsenic pentoxide (as arsenate of lead)	*7·8*	..	ditto
	Copper sulphate	*13·0*	..	
Tobacco Leaf No. 4 Dust	Arsenic pentoxide (as arsenate of lead)	*12·6*	..	ditto
Tomato No. 1 Dust	Arsenic pentoxide (as arsenate of lead)	*6·3*	..	ditto
	Sulphur (as powdered sulphur)	*29·0*	..	
	Copper sulphate	*10·0*	..	
Tomato No. 2 Dust	Arsenic pentoxide (as arsenate of lead)	*7·8*	..	ditto
	Sulphur (as powdered sulphur)	*29·0*	..	
	Nicotine	*2·0*	..	
	Copper sulphate	*13·0*	..	
Clou-Dust—				
Blight 20	Dehydrated copper sulphate	*13·5*	..	Clou-Dust Spray Manufacturers, 152 Stanley street, South Brisbane
Blight Dust Special	Dehydrated copper sulphate	*13·5*	..	ditto
	Ground sulphur	*10·0*	..	
C.D. 50	Arsenic pentoxide (as arsenate of lead)	*15·5*	..	ditto
C.D. Special	Dehydrated copper sulphate	*10·0*	..	ditto
	Arsenic pentoxide (as arsenate of lead)	*7·8*	..	
Nicotine Dust Special	Nicotine sulphate	*6·7*	..	ditto
	Tobacco powder	*30·0*	..	
Tomato Dust No. 1	Dehydrated copper sulphate	*10·0*	..	ditto
	Ground sulphur	*30·0*	..	
	Nicotine sulphate	*5·0*	..	
	Arsenic pentoxide (as arsenate of lead)	*12·5*	..	
Tomato Dust No. 2	Dehydrated copper sulphate	*10·0*	..	ditto
	Ground sulphur	*30·0*	..	
	Arsenic pentoxide (as arsenate of lead)	*12·5*	..	
Vegetable Dust Special	Nicotine sulphate	*5·0*	..	ditto
	Tobacco powder	*10·0*	..	
	Arsenic pentoxide (as arsenate of lead)	*9·5*	..	

* Average of two analyses.

DUSTING MIXTURES—*continued.*

Name of Pest Destroyer.	Active Constituents as Declared on Label.	%	Found. %	Queensland Wholesale Dealer.
Cloudform Dust—Azurine No. 2	Copper carbonate	10·0	8·3	Committee of Direction of Fruit Marketing, Turbot street, Brisbane
	Sulphur	40·0	*37·5	
Cop-Sul Dusting Powder	Copper sulphate	20·0	..	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
	Sulphur (as sublimed flowers)	20·0	..	
" Vallo " Dusting Compound for Tobacco—				
A.L. 30	Arsenate of lead	30·0	..	A. Victor Leggo and Co., Pty., Ltd., 72 Albert street, Brisbane
A.L. 50	Arsenate of lead	50·0	..	ditto
A.L.B.	Arsenate of lead	25·0	..	ditto
	Copper sulphate	13·0	..	
A.L.B.N.	Arsenate of lead	25·0	..	ditto
	Copper sulphate	13·0	..	
	Nicotine sulphate	3·0	..	
Vallo " N. 40 Dust	Nicotine	2·5	2·7	ditto
" Vallo " Tomato and Vegetable Dusting Compound No. 1	Arsenate of lead	50·0	..	ditto
	Copper carbonate	10·0	..	
	Sulphur	40·0	..	
" Vallo " Tomato and Vegetable Dusting Compound No. 2	Arsenate of lead	25·0	..	ditto
	Copper carbonate	10·0	..	
	Sulphur	40·0	..	
Dusting Preparations for Poultry.				
Rawleigh's Louse Powder	Nicotine	0·6	..	Robinson and Bott Pty., Ltd., 459 Adelaide street, Brisbane
	Sulphur	8·4	..	
	Naphthalene	8·5	..	
Red Comb Dusting Powder	*See* Derris preparations.			

* " Carbon Bisulphide Soluble " Sulphur.

LIME SULPHUR.

Lime sulphur must contain in solution 20 per cent. of sulphur (weight to weight). It has been ascertained that the fungicidal value of lime sulphur is dependant upon the "polysulphide sulphur" content; the polysulphides of calcium split up readily to give "nascent" sulphur and calcium monosulphide—it is this "nascent" sulphur that apparently has the fungicidal value. The polysulphide sulphur content has no definite connection with either the total sulphur content or the specific gravity (Beaumé), and consequently the only way of estimating the efficiency of a lime sulphur is to ascertain the percentage of polysulphide sulphur present. It should be noted that the quantity of total or polysulphide sulphur present is shown either as a true percentage (i.e., gms. per 100 gms.) or as a weight to volume percentage (i.e., gms. per 100 c.c.). The weight to volume figure is the higher, and may be converted to the true percentage by dividing by the specific gravity (usually approximately 1·2 for lime sulphur).

The table published under this heading in the departmental report for 1933 showed percentages found as grams per 100 c.cs. (weight to volume); the figures shown in the following list of registered materials for this year are true percentages (grams per 100 grams), and last year's figures should be divided by the specific gravity of the solutions (approx. 1·2) to obtain true percentages comparable with those shown below:—

Name of Pest Destroyer.	Active Constituents as Declared on Label.	%	Found. %	%	Queensland Wholesale Dealer.
A.C.F. Lime Sulphur Solution	Dissolved sulphur	25·0	23·7	*17·9	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
C.O.D. Special Lime Sulphur	Sulphur	25·0	20·2	*13·8	Committee of Direction of Fruit Marketing, Turbot street, Brisbane
Harola Lime Sulphur Spraying Solution	Sulphur in solution	25·0	18·0	*13·4	Buzacotts (Queensland) Ltd., 413 Adelaide street, Brisbane
Harola Pure Lime Sulphur Spraying Solution	Sulphur	25·0	18·0	*11·8	Queensland Fruitgrowers' Society, Ltd., Makerston street, Brisbane
' Neptune " Lime Sulphur Spraying Solution	Sulphur	25·0	19·5	*13·4	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
" United " Lime Sulphur Spray	Sulphur	25·0	21·3	*16·6	United Chemical Co., Ltd., 158 Grey street, South Brisbane
" Vallo " Lime Sulphur Wash	Dissolved sulphur	25·0	21·0	*14·2·	A. Victor Leggo and Co. Pty., Ltd., 72 Albert street, Brisbane

* Polysulphide Sulphur Content.

SHEEP DIPS ARSENICAL.

Sheep Dips Arsenical.—The standard provides that the dipping fluid obtained on dilution must contain from one-fifth to one-quarter per cent. of arsenic trioxide (As_2O_3).

SHEEP DIPS ARSENICAL—*continued.*

In connection with the following list of preparations registered during the current year, reference should be made to the comments made on cattle dip and sheep dip pastes, under the heading of "Cattle Dips."

Name of Pest Destroyer.	Active Constituents and Rate of Dilution as Declared on Label.	Found.	Queensland Wholesale Dealer.
	%	%	
Liquid.			
Century Sheep Dip	Arsenic and cresols (1 gallon concentrate to 300 gallons water)	*	McGlew and Co., Ryan House, Charlotte street, Brisbane
"Cubba" Sheep Dip Blowfly Specific	Arsenic (1 gallon concentrate to 77 gallons water)	*	Tom Brown, The Works, Bullamon Station, Thallon
Harton Double Strength Arsenical Sheep Dip	Arsenic and cresols (1 gallon concentrate to 320 gallons water)	*	Chemical and Tar Products Pty., Ltd., Lower Ann street, Brisbane
Hart's Immunol Arsenical Fluid Sheep Dip	Arsenic and cresols (1 gallon concentrate to 150 gallons water)	*	James Hardie Trading Co., Ltd., Perry House, Elizabeth street, Brisbane
"Mactaggart's" Arsenical Sheep Dip	Arsenic (1 gallon concentrate to 150 gallons water)	*	Mactaggart's Co-op. Assoc., Ltd., 70 Eagle street, Brisbane
Standard Arsenical Sheep Dip	Arsenic (1 gallon concentrate to 150 gallons water)	*	Queensland Chemical and Distributing Co., 111 Elizabeth street, Brisbane
"United" Sheep Dip No. 1	Arsenic (1 gallon concentrate to 150 gallons water)	*	United Chemical Co., Ltd., 158 Grey street, South Brisbane
Paste.			
Lan-O-Leen	Arsenic (1 gallon concentrate to 250 gallons water)	‡	Buzacotts (Queensland) Ltd., 413 Adelaide street, Brisbane
Vacdip	Arsenic and phenol (10 lb. concentrate to 75 gallons water)	†	Vacuum Oil Co., Ltd., Eagle street, Brisbane
Bar.			
Kiltic Sheep Dip (Bar Form)	Arsenic (2½ lb. "bar" to 50 gallons water)	*	Surgical Supplies Ltd., 246 Queen street, Brisbane
Powder.			
Cooper's Sheep Dipping Powder	Arsenic and sulphur compounds (10 lb. ½ oz. "powder" to 100 gallons water)	*	New Zealand Loan and M. A. Co., Ltd., Eagle street, Brisbane
Edward's Sheep Dipping Powder	Arsenic (10 lb. "powder" to 100 gallons water)	*	Goldsbrough, Mort, and Co., Ltd., Eagle street, Brisbane
"Imperial" Sheep Dipping Powder	Arsenic and sulphur compounds (10 lb. "powder" to 100 gallons water)	*	A. Victor Leggo and Co., Pty., Ltd., 72 Albert street, Brisbane
Little's Powder Sheep Dip	Arsenic and sulphur (10 lb. "powder" to 100 gallons water)	*	Wilcox, Mofflin, Ltd., Longland street, Brisbane
Quibell's Powder Sheep Dip	Arsenic (11 lb. 4 oz. "powder" to 100 gallons water)	*	Dalgety's and Co., Ltd., Elizabeth street, Brisbane
"Vallo" Powder Sheep Dip	Arsenic and sulphur (10 lb. "powder" to 100 gallons water)	*	A. Victor Leggo and Co., Pty., Ltd., 72 Albert street, Brisbane
Young's Sheep Dip Powder	Arsenic (10 lb. "powder" to 115 gallons water)	*	Sturmfels P. P. Co-op. Assn., Ltd., 138 Creek street, Brisbane

The above sheep dip concentrates marked * when diluted in accordance with instructions on labels, gave fluids of standard strength. The liquid and paste dip concentrates were found to be homogeneous, except those marked †.

‡ Two samples analysed—one complying with requirements of the Regulations—the other not complying.

SHEEP DIPS PHENOLIC.

Sheep Dips, Phenolic.—No standard is as yet provided, but a dip of phenolic content less than 16 per cent. would not be a paying proposition on account of the freight wasted on inert constituents compared with more concentrated dips.

The following list gives particulars of materials registered during the current year:—

Name of Pest Destroyer.	Active Constituents as Declared on Label.		Found.	Queensland Wholesale Dealer.
		%	%	
Alco Sheep Dip	Tar acids	20·0	18·9	Australian Laboratories, corner Hope and Peel streets, South Brisbane
Cooper's Milk Oil Fluid	Phenols and cresols	18·0	18·4	New Zealand Loan and M. A. Co., Ltd., Eagle street, Brisbane
Harton Sheep Dip Phenolic	Cresylic acid	20·0	..	Chemical and Tar Products Pty., Ltd., Lower Ann street, Brisbane
"Hibiscus" Phenolic Sheep Dip	Tar acids	20·0	18·9	Queensland Pastoral Supplies, Ltd., Bowen street, Brisbane
"Kreeola" Sheep Dip	Tar acids	20·0	20·4	Australian Chemical Co., Ltd., Donkin street, South Brisbane
"Mactaggarts" Special Phenolic Sheep Dip	Tar acids	20·0	22·4	Mactaggarts Co-op. Assn., Ltd., 64 Eagle street, Brisbane
Mallinson's Oil Sheep Dip	Cresols and/or phenols	18·0	..	N. S. Pixley, Ryan House, Eagle street, Brisbane
Morrison's Phenolic Sheep Dip	Tar acids	15·0	13·8	H. Deakin, Ryan House, Eagle street, Brisbane
Quibell's Liquid Sheep Dip and Cattle Wash	Tar acids	18·0	16·6	A. M. Bickford and Sons, Ltd., Tank street, Brisbane
Quibell's Liquid Sheep Dip	Tar acids	18·0	18·4	Dalgety and Co., Ltd., Elizabeth street, Brisbane
Royal Sheep Dip Liquid (Improved)	Cresols	18·0	23·8	Australian Machinery Co., Pty., Ltd., 371 Adelaide street, Brisbane
Standard Phenolic Sheep Dip	Tar acids	20·0	22·0	Queensland Chemical and Distributing Co., 111 Elizabeth street, Brisbane
United Sheep Dip No. 2	Tar acids	20·0	18·8	United Chemical Co., Ltd., 158 Grey street, South Brisbane
"Vallo" Fluid Sheep Dip	Tar acids	18·0	18·5	A. Victor Leggo and Co., Pty., Ltd., 72 Albert street, Brisbane

SHEEP PREPARATIONS.

Sheep Preparations.—These pest destroyers, as their names indicate, are materials recommended as useful in preventing or treating "fly blow" and similar troubles to which sheep are subject. No standard is set, but the following list of preparations registered during the current year gives particulars of the active constituents declared on the labels and the "founds" when analysed:—

Name of Pest Destroyer.	Active Constituents as Declared on Label.		Found.	Queensland Wholesale Dealer.
		%	%	
Blo-Fli-Di	Naphthalene Cresols	8·0 6·0	.. ..	Brabant and Co., Charlotte street, Brisbane
Campbell's Famous Mananga Spraying Oil	Carbolic acid Formaldehyde	15·0 0·5	.. ..	E. J. Rees and Co., Ferry street, Indooroopilly
Campbell's Improved Fly-Blow Dressing Oil	Phenols	4·0	4·6	Campbell Bros., Ltd., Bowen Hills, Brisbane
Campbell's Lamb Dressing Oil	Phenols Carbon tetrachloride	4·0 4·0	..	ditto
Century Fly Oil	Cresylic acid Eucalyptus	4·0 4·0	.. ..	McGlew and Co., Charlotte street, Brisbane
Deignan's Blow Fly Destroyer	Tar acids	9·0	..	E. J. Deignan, Stafford road, Kedron, Brisbane
Eastman's "Policeman Fly" Sheep Spraying Soap	Arsenic As_2O_3 (24 lb. soap to 100 gallons water gives 0·7 per cent. As_2O_3	.. ..	.. 0·7	H. R. Eastman, Ryandale, Cunnamulla
'Ess Ess" Lamb Fly Blow Dressing Oil	Phenols Carbon tetrachloride	4·0 4·0	.. ..	Surgical Supplies Ltd., 246 Queen street, Brisbane
'Ess Ess" Sheep Fly Blow Dressing Oil	Phenols	4·0	..	ditto
Fleeco	Tar Oils Cresols	75·0 2·0	77·9 3·7	Queensland Chemical and Distributing Co., 111 Elizabeth street, Brisbane
Fly Blow Dressing	Tar oils	80·0	..	Australian Chemical Co., Ltd., Donkin street, South Brisbane
Flynox	Phenolic compounds	7·0	6·4	Dalgety and Co., Ltd., Elizabeth street, Brisbane
Harton Blow Fly Fluid	Phenols and cresols	5·0	..	Chemical and Tar Products Pty., Ltd., Lower Ann street, Brisbane
Harton Jetting Fluid	Arsenic As_2O_3 (1 gallon concentrate to 100 gallons water gives 0·7 per cent. As_2O_3)	.. ..	.. 0·7	ditto
Hart's Immunol Blowfly Repellant	Arsenic As_2O_3 Phenols and cresols Oils (tar, eucalyptus, and mineral)	1·4 16·0 52·8	1·3 16·7 61·0	James Hardie Trading Co., Pty., Ltd., Perry House, Elizabeth street, Brisbane
Hibiscus Blow Fly Fluid	Phenols and cresols	5·0	..	Queensland Pastoral Supplies, Ltd., Bowen street, Brisbane
Kleenflox	Mineral oil Eucalyptus oil	47·0 4·0	.. ..	Taubman's (Queensland) Pty., Ltd., 95 Edward street, Brisbane
Mactaggarts "Antiseptic" Sheep Fly Oil	Tar oils	80·0	82·5	Mactaggart's Co-op. Assn., Ltd., 70 Eagle street, Brisbane
Marino Blow Fly Dressing	Phenols and cresols	5·0	9·1	Marino Products, Ltd., 43 Creek street, Brisbane
Marino Jetting Fluid	Arsenic As_2O_3 and cresols (1 gallon concentrate to 100 gallons water gives 0·7 per cent. As_2O_3)	.. ..	.. ·7	ditto
Morrison's Fly Blown Sheep Oil	Tar acid	5·0	5·4	H. Deakin, Ryan House, Charlotte street, Brisbane
Neptune" Blow Fly Sheep Oil	Carbolic acid	5·0	6·5	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
Policeman Fly" Oil	Phenols	5·0	..	H. R. Eastman, Ryandale, Cunnamulla
hell Defiance Blow Fly Oil	Phenolic content	3·0	2·7	The Shell Co. of Australia, Ltd., Ann street, Brisbane
Squatter" Blow Fly Sheep Oil	Phenolic content	3·0	4·1	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
United" Arsenical Jetting Fluid	Arsenic As_2O_3 and cresols (1½ gallons concentrate to 100 gallons water gives 0·7 per cent. As_2O_3)	.. ..	.. *0·7	The Australian Estates and Mortgage Co., Ltd., 35 Creek street, Brisbane
Vallo" Blowfly Oil	Arsenic As_2O_3 Phenol	0·5 1·5	0·4 1·7	A. Victor Leggo and Co., Pty., Ltd. 72 Albert street, Brisbane
Woollo Lamb Marking and Fly Blow Dressing	Tar oils	80·0	83·7	The Australian Estates and Mortgage Co., Ltd., 35 Creek street, Brisbane

* Average of two samples.

SPRAYING OILS.

Spraying Oils.—The percentage of mineral oil in white, red, or other spraying oils should be declared on the label. It should be noted that with all liquid pest destroyers the true percentage should be shown or else the percentage "vol" indicated on the label. There is a considerable difference between true percentage and percentage "vol"—the former being gms. per 100 gms., and the latter gms. per 100 c.c.—the former being obtained from the latter by dividing by the specific gravity of the liquid.

The following list of "spraying oils" registered during the current year shows these preparations divided into two groups—"white oils" and "other oils"—the latter group including the "red oil preparations":—

Name of Pest Destroyer.	Active Constituents as Declared on Label.		Found.	Queensland Wholesale Dealer.
Spraying Oils (White).		%	%	
barol White Oil	Heavy petroleum oil	85.4	74·2	Buzacotts (Queensland) Ltd., 413 Adelaide street, Brisbane
oper's Alboleum	Hydrocarbon oil	80·0	82·7	Queensland Fruitgrowers' Society, Ltd., Makerston street, Brisbane
rgoyle White Spraying Oil	White oil	80·0	81·3	Vacuum Oil Co., Pty., Ltd., Eagle street, Brisbane
eptune Prepared White Spraying Oil	Mineral oil	80·0	84·7	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
ell Whitespray	Refined petroleum oil	88·8	86·6	The Shell Co. of Australia, Ltd., Ann street, Brisbane
Vallo" Prepared White Oil	Mineral oil	89·0	87·5	A. Victor Leggo and Co., Pty., Ltd., 72 Albert street, Brisbane
ick	Refined petroleum oils	80·0	80·9	Australian Fruit and Produce Co., Ltd., Turbot street, Brisbane

SPRAYING OILS—*continued.*

Name of Pest Destroyer.	Active Constituents as Declared on Label.		Found.	Queensland Wholesale Dealer.
		%	%	
Spraying Oils (Red and/or Coloured).				
Clarifol	Mineral oil	85·0	81·6	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
C.O.D. Improved Red Oil	Mineral oil Cresylic acid	75·0 7·0	77·4 6·1	Committee of Direction of Fruit Marketing Co., Turbot street, Brisbane
Cooper's Ovicide Tar Oil	Tar oils Phenols Mineral oils	48·0 10·0 20·0	51·7 8·5 19·6	Queensland Fruitgrowers' Society, Ltd., Makerston street, Brisbane
Gargoyle Red Spraying Oil	Mineral oil	85·0	83·5	Vacuum Oil Co., Pty., Ltd., Eagle street, Brisbane
Harbas Red Oil	Miscible oil	75·0	66·7	Buzacotts (Queensland) Ltd., 413 Adelaide street, Brisbane
Harbas Red Oil	Red oil *Tar acids	75·0 ..	80·5 5·5	Queensland Fruitgrowers' Society, Ltd., Makerston street, Brisbane
Irving's Prepared Soluble Red Spraying Emulsion	Kerosene	62·0	68·7	John Irving and Sons, London Works, Mayne
"Neptune" Prepared Spraying Oil "A"	Heavy mineral oil	87·0	90·1	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
"Neptune" Prepared Spraying Oil "C"	Mineral oil Carbolic acid	71·2 8·3	75·5 7·8	ditto
Red Oil Spray	Mineral oil Cresylic acid	75·0 7·0	74·2 7·8	United Chemical Co., Ltd., 158 Grey street, Brisbane
Shell P.C.S.	Crude petroleum	77·0	81·0	The Shell Co. of Australia, Ltd., Ann street, Brisbane
Shell Redspray	Petroleum oil	85·0	88·0	ditto
Shellicide D	Refined petroleum oil	85·0	86·1	ditto
"Vallo" Red Spraying Oil	Heavy mineral oil	89·0	86·2	A. Victor Leggo and Co., Pty., Ltd., 72 Albert street, Brisbane

* Not declared on label.

SULPHUR.

The percentage of sulphur present and the forms in which it occurs should be declared on the label. Ground sulphur is the cheapest form, but being a direct mineral product is not so active as the other forms. Sublimed sulphur (flowers) is more active than ground, is a deeper yellow, and usually contains a trace of acid, formed by oxidation of the sulphur during manufacture. Precipitated sulphur is formed by chemical reaction, and is finer and more expensive than the other two forms. All three sulphurs have widespread use; ground sulphur is the one most used in dusting mixtures.

A recent arrival upon the market is Colloidal sulphur, which has achieved marked success in New Zealand, the outstanding feature being its remarkable degree of fineness, in comparison with the other forms.

The following table sets out the sulphurs and sulphur preparations registered during the current year:—

Name of Pest Destroyer.	Active Constituents as Declared on Label.		Found.	Queensland Wholesale Dealer.
		%	%	
Sulphur (Ground).				
Australian Ground Sulphur	Ground sulphur	..	99·6	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
Australian Sulphur (Powdered)	Sulphur powdered	..	99·7	Burns, Philp, and Co., Ltd., Mary street, Brisbane
Powdered Sulphur	Pure sulphur	98·0	99·4	A.C.F. and Shirley's Fertilizers Ltd., Little Roma street, Brisbane
Powdered Sulphur	Powdered sulphur	99·5	99·4	C. H. Slade and Co., 144 Mary street, Brisbane
Sicilian Sulphur	Groud sulphur	..	98·9	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
"Vallo" Powdered Sulphur	Sulphur	99·0	99·1	A. Victor Leggo and Co., Pty., Ltd., 72 Albert street, Brisbane
Sulphur (Sublimed Flowers).				
Sublimed Flowers of Sulphur	Sublimed flowers of sulphur	100·0	99·8	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
Sublimed Flowers of Sulphur	Flowers of sulphur	..	99·3	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
Sulphur Sublim B.P.	Flowers of sulphur	..	99·2	Taylors, Elliotts, and Australian Drug Pty., Ltd., 154 Charlotte street, Brisbane
Sulphur (Precipitated).				
"Neptune" Precipitated Sulphur	Precipitated sulphur	..	99·3	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
Sulphur (Colloidal).				
Cooper's Colloidal Sulphur	Sulphur	50·0	..	Queensland Fruitgrowers Society Ltd., Makerston street, Brisbane
Sulphur (Preparations).				
"Vallo" Brand Atomised Sulphur	* Precipitated Sulphur	50·0	43·2	A. Victor Leggo and Co., Pty., Ltd., 72 Albert street, Brisbane
"Vallo" Sulphur Dust (Wettable)	Sulphur	98·5	99·6	ditto

* 50·2 per cent. moisture contained in this "paste."

PEST DESTROYERS NOT INCLUDED IN THE FOREGOING TABLES.

Name of Pest Destroyer.	Active Constituents as Declared on Label.		Found.	Queensland Wholesale Dealer.
		%	%	
Arsenic (Pure).				
Arsenic (White)	Arsenic trioxide As_2O_3	98·0	97·8	Taylors, Elliotts, and Australian Drug Pty., Ltd., 154 Charlotte street, Brisbane
Refined Arsenic	Arsenic trioxide As_2O_3	99·0	99·1	G. Horsburgh and Co., Pty., Ltd., Kent street, Maryborough
Street's Pure Arsenic	Arsenic trioxide As_2O_3	98·0	98·4	Wm. Street and Son, 176 Ann street, Brisbane
"Vallo" Brand Arsenic (White)	Arsenic trioxide As_2O_3	99·0	99·3	A. Victor Leggo and Co., Pty., Ltd., 72 Albert street, Brisbane

PEST DESTROYERS NOT INCLUDED IN THE FOREGOING TABLES—*continued.*

Name of Pest Destroyer.	Active Constituents as Declared on Label.		Found.	Queensland Wholesale Dealer.
		%	%	
Arsenic (Commercial).				
Arsenic (Grey)	Arsenic trioxide As_2O_3	*97·0*	97·4	S. Hoffnung and Co., Ltd., Charlotte street, Brisbane
Arsenic (Grey)	Arsenic trioxide As_2O_3	*95·0*	97·6	Queensland Pastoral Supplies, Pty., Ltd., Bowen street, Brisbane
Arsenic (Grey)	Arsenic trioxide As_2O_3	*95·0*	95·6	Taylors, Elliotts, and Australian Drug Pty., Ltd., 154 Charlotte street, Brisbane
Grey Arsenic	Arsenic trioxide As_2O_3	*95·0*	97·4	A. M. Bickford and Sons, Ltd., Tank street, Brisbane
Imperial Arsenic	Arsenic trioxide As_2O_3	*97 0*	98·1	A. Victor Leggo and Co., Pty., L 72 Albert street, Brisbane
Viking Arsenic (Grey)	Arsenic trioxide As_2O_3	*95·0*	97·8	ditto
Arsenical Weed and Vermin Destroyers.				
Alco Weed Killer	Arsenic trioxide As_2O_3	*20·0*	19·6	Australasian Laboratories, corner Hope and Peel streets, South Brisbane
"Arzeen" (In Liquid Form)	Arsenic trioxide As_2O_3	*46·0*	..	A. Victor Leggo and Co., Pty., Ltd., 72 Albert street, Brisbane
"Arzeen" (In Powder Form)	Arsenic trioxide As_2O_3	*80·0*	..	ditto
Bickford's Ant and Vermin Destroyer	Arsenic trioxide As_2O_3	*35·0*	..	A. M. Bickford and Sons, Ltd., Tank street, Brisbane
C.O.D. Improved Weed Killer	Arsenic trioxide As_2O_3	*40·0*	..	Committee of Direction of Fruit Marketing, Turbot street, Brisbane
Cooper's Weedicide	Arsenic trioxide As_2O_3	*36·0*	..	New Zealand Loan and M. A. Co., Ltd., Eagle street, Brisbane
Eradiweed	Arsenic trioxide As_2O_3	*30·5*	..	G. Horsburgh and Co., Pty., Ltd., Kent street, Maryborough
Kiloweed	Arsenic pentoxide As_2O_5	*39·5*	..	Queensland Chemical and Distributing Co., 111 Elizabeth street, Brisbane
Street's Cure for Ants, &c.	Arsenic trioxide As_2O_3	*5·5*	..	Wm. Street and Son, 176 Ann street, Brisbane
Street's Cure for Weeds, &c.	Arsenic trioxide As_2O_3	*10·0*	..	ditto
Taylor's Concentrated Weed Destroyer	Arsenic trioxide As_2O_3	*18·0*	..	Taylors, Elliotts, and Australian Drug Pty., Ltd., 154 Charlotte street, Brisbane
"United" Improved Weed Tox	Arsenic trioxide As_2O_3	*40·0*	..	The Australian Estates and Mortgage Co., Ltd., 35 Creek street, Brisbane
"United" Improved Weed Tox	Arsenic trioxide As_2O_3	*40·0*	..	United Chemical Co., Ltd., 158 Grey street, South Brisbane
Weed Killer	Arsenic trioxide As_2O_3 Cresylic acid	*25·0* *2·5*	.. ..	Australian Chemical Co., Ltd., Donkin street, South Brisbane
Copper Sulphate.				
Australian Bluestone	Copper Sulphate $CuSO_45H_2O$	*99·0*	99·4	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
Bluestone	Copper sulphate $CuSO_45H_2O$	*99·0*	99·3	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
Bluestone (Copper Sulphate)	Copper sulphate $CuSO_45H_2O$	*99·0*	98·9	G. Horsburgh and Co., Pty., Ltd., Kent street, Maryborough
Cupri Sulphas B.P.	Copper sulphate $CuSO_45H_2O$	..	99·9	Taylors, Elliotts, and Australian Drug Pty., Ltd., 154 Charlotte street, Brisbane
E.S.A. Bluestone	Copper sulphate $CuSO_45H_2O$	*99·0*	99·5	Elder Smith and Co., Ltd., 334 Queen street, Brisbane
E.S.A. Dehydrated Bluestone	Copper (as dehydrated copper sulphate $CuSO_4$)	*35·0*	35·5	ditto
Macclesfield Bluestone	Copper sulphate $CuSO_45H_2O$	*99·0*	99·5	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
"Vallo" Brand Copper Sulphate	Copper sulphate $CuSO_45H_2O$	*98·0*	97·0	A. Victor Leggo and Co., Pty., Ltd., 72 Albert street, Brisbane
Cyanide.				
Cyanide of Potash	Cyanide of potash	*95·0*	..	Taylors, Elliotts, and Australian Drug Pty., Ltd., 154 Charlotte street, Brisbane
Cyanogas	Calcium cyanide $Ca(CN)_2$	*40·0*	..	Buzacotts (Queensland) Ltd., 413 Adelaide street, Brisbane
Sodium Cyanide	Sodium cyanide	..	..	G. Horsburgh and Co., Pty., Ltd., Kent street, Maryborough
Sodium Cyanide (High Grade)	Sodium cyanide	*97·0*	..	Noyes Bros. (Sydney), Ltd., 197 Elizabeth street, Brisbane
Sodium Cyanide (Low Grade)	Sodium cyanide	*74·0*	..	ditto
Formalin.				
Bickford's Formalin	Formaldehyde	**40·0*	..	A. M. Bickford and Sons, Ltd., Tank street, Brisbane
Formaldehyde 40 per cent.	Formaldehyde	*40·0*	..	C. H. Slade and Co., 144 Mary street, Brisbane
Formaldehyde	Formaldehyde	..	..	Taylors, Elliotts, and Australian Drug Pty., Ltd., 154 Charlotte street, Brisbane
Iron Sulphate.				
Ferrous Sulphate B.P.	Ferrous sulphate $FeSO_47H_2O$	*95·0*	..	Taylors, Elliotts, and Australian Drug Pty., Ltd., 154 Charlotte street, Brisbane
Sulphate of Iron	Sulphate of iron	*98·0*	..	A.C.F. and Shirley's Fertilizers, Ltd., Little Rona street, Brisbane
Sulphate of Iron	Sulphate of iron $FeSO_47H_2O$	*99·0*	..	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
Nicotine Compounds.				
Black Leaf 40	Nicotine	*40·0*	40·0	Neptune Oil Co., Ltd., 301 Ann street, Brisbane
Britnico Nicotine Sulphate	Nicotine	*40.0*	42·3	Committee of Direction of Fruit Marketing, Turbot street, Brisbane
"Buzacott" 40 per cent. Nicotine Sulphate	Nicotine	*40·0*	43·1	Buzacotts (Queensland), Ltd., 413 Adelaide street, Brisbane
Kwik-kure Nicotine Sulphate 40	Nicotine	*40·0*	41·8	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
"Vallo" Brand Nicotine Sulphate	Nicotine	*40·0*	38·6	A. Victor Leggo and Co., Pty., Ltd., 72 Albert street, Brisbane
Paris Green.				
"Buzacott" Paris Green Powder	Arsenic trioxide As_2O_3	*55·0*	55·8	Buzacotts (Queensland), Ltd., 413 Adelaide street, Brisbane
Paris Green	Arsenic trioxide As_2O_3	*55·0*	..	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
Paris Green	Arsenic trioxide As_2O_3 (Not more than 3½ per cent. water soluble As_2O_3)	*55·0*	..	A. M. Bickford and Sons, Ltd., Tank street, Brisbane
Paris Green	Arsenic trioxide As_2O_3 (Not more than 3½ per cent. water soluble As_2O_3)	*55·0*	..	Taylors, Elliotts, and Australian Drug Pty., Ltd., 154 Charlotte street, Brisbane
Pure Paris Green	Arsenic trioxide As_2O_3 (Water soluble metallic arsenic)	*55·0* *1·2*	.. ..	Committee of Direction of Fruit Marketing, Turbot street, Brisbane

* Percentage given is "weight to volume."

Pest Destroyers not included in the Foregoing Tables—*continued.*

Name of Pest Destroyer.	Active Constituents as Declared on Label.		Found	Queensland Wholesale Dealer.
		%	%	
Phosphous Pastes.				
Ausoline Rat and Mice Destroyer	Phosphorus Arsenic	*0·004* *0·03*	*0·3 5·6	W. Lowe, Federation street, Windsor, Brisbane
Byrne's Electric Paste	Phosphorus	*0·6*	*0·4	Houghton and Byrne, T. and G. Building, Albert street, Brisbane
Phosphorus Paste	Phosphorus	*1·3*	*1·1	Wm. Street and Son, 176 Ann street, Brisbane
Rat Death	Phosphorus	*1·9*	*1·4	Taylors, Elliotts, and Australian Drug Pty., Ltd., 154 Charlotte street, Brisbane
S.A.P.	Phosphorus	*5·8*	*5·3	New Zealand Loan and M. A. Co., Ltd., Eagle street, Brisbane
W.A.R.P.	Phosphorus	*5·0*	*5·6	The Aust. Rabbit Poison Co., Annerley road, South Brisbane
Strychnine.				
Pure Strychnine (Jacob Hulle)	Pure strychnine		..	Denham Bros. (Rockhampton), Ltd., East street, Rockhampton
Pure Strychnine (Jacob Hulle)	Strychnine		..	New Zealand Loan and M. A. Co. Ltd., Eagle street, Brisbane
Pure Strychnine Powder	Pure strychnine		..	Thos. Brown and Sons, Ltd., Eagle street, Brisbane
Strychnine (Jacob Hulle)	Strychnine		..	Taylors, Elliotts, and Australian Drug Pty., Ltd., 154 Charlotte street, Brisbane
Strychnine Cryst. (T. and H. Smith)	Strychnine		..	Denham Bros. (Rockhampton), Ltd., East street, Rockhampton
Wellcome Strychnine	Strychnine		..	ditto
Wellcome Strychnine	Strychnine		..	Queensland Pastoral Supplies, Ltd., Bowen street, Brisbane
Miscellaneous Preparations (not included elsewhere)				
Bisulphide of Carbon (Fumigant)	Bisulphide of carbon		..	Taylors, Elliotts, and Australian Drug Pty., Ltd., 154 Charlotte street, Brisbane
Davis Spraying Glue Pearls (Spray for Scale, &c.)	Specially prepared glue	*99·0*	..	Davis Gelatine (Aust.), Ltd., 459 Adelaide street, Brisbane
Dutox (Insecticidal Spray or Dust)	Barium silico-fluoride	*80·0*	..	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
Paradichlorobenzene	Paradichlorobenzene	..	..	ditto
Pestend (Tobacco Dust)	Nicotine	*1·0*	0·9	W. D. and H. O. Wills (Australasia), Ltd., Ann street, Brisbane
Shirlan A. G. (Fungicidal Spray)	Salicyl-anilide	*25·0*	..	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
Squilltox (Rat Poison)	Red Squill—pulverised	*100·0*	..	Houghton and Byrne, T. and G. Building, Albert street, Brisbane
"Vallo" Arsenic Pentoxide	Arsenic pentoxide As_2O_5	*83·0*	97·3	A. Victor Leggo and Co., Pty., Ltd., 72 Albert street, Brisbane
"Vallo" Benzol Emulsion	Benzol	*30·0*	..	ditto

* Complies with Fire Test.

Several miscellaneous groups of pest destroyers have not been included in this report.

For the better understanding of the tables a pest destroyer is defined by the Act as "Any fungicide, insecticide, vermin destroyer, or weed destroyer." This means that a pest destroyer is any substance used for the purpose of destroying or preventing the attacks of fungi or other parasitic plants or bacteria, or any substance used for the purpose of destroying insects or other pests which infest or attack fruit, vegetables, plants, or other produce of the soil, or which infest or attack animals, or for preventing such insects or pests from infesting or attacking the same; or any substance used for the purpose of destroying rabbits, rodents, dingoes, foxes, or other noxious animals or noxious birds; or any substance used for the purpose of destroying or preventing the spread of weeds or noxious plants.

Since the issue of the Regulations during 1923 considerable advance has been made in the manufacture of preparations accepted as useful for the purposes defined in the Act; particularly is this noticeable with Derris preparations, dusting mixtures, lime sulphur (declaration of the percentage of polysulphide sulphur), phenolic sheep dips, and many other materials.

It is therefore imperative that in the near future amending Regulations be issued providing new standards for many of the preparations mentioned in the foregoing context. This short article gives some indication as to the changes that will in future be required on labels, enabling the user to see the active constituents expressed in a more definite form.

From the 1st July, 1933, to the 30th June, 1934, 412 samples of pest destroyers were received by the Branch; of these, 375 were forwarded for registration under section 3 of the Pest Destroyers Act. The remainder consist chiefly of samples taken by inspectors of this Branch for purposes of control and supervision mentioned earlier in this article.

Every dealer in pest destroyers is required to send in a return, showing the names of the materials that he is selling, together with the names and addresses of the wholesale dealers from whom such materials were obtained; the number of these returns received during the current year was approximately 220.

It has often been necessary to draw attention to this requirement, as many firms dealing in pastoral and farm supplies in various parts of this State carefully evade furnishing this information, and necessitated a recent and somewhat lengthy trip to North Queensland, the full results of which cannot as yet be seen.

To administer Acts with the requirements of the Pest Destroyer (and Veterinary Medicines) Act, the present small staff is quite inadequate to make the necessary inspections covering all storekeepers in this large State. The number of Acts administered by this Branch amounts to five—the total staff to the same number.

VETERINARY MEDICINES, 1934.

"The Veterinary Medicines Act of 1933" defines "veterinary medicine" as any mixture, compound, or preparation of one or more drugs or ingredients in any form, or any biological products, including both living and dead vaccines, sera, and diagnostic agents, intended to be administered to stock by any means—

(*a*) For the purpose of curing or alleviating any injury to stock;

(*b*) For the purpose of curing or preventing any disease of any stock;

(*c*) For the purpose of improving the condition of, or increasing the capacity of any stock, for work or production or show purposes.

The definition includes such materials as—

"Blisters"
"Condition Powders"
"Drenches"
"Embrocations"
"Tonics"
"Vaccines"
"Veterinary Disinfectants"
"Veterinary Salves"
"Worm Capsules and Powders," and all
"Specifics for treatment of injury or disease of stock."

Regulations under the Act were issued in the "Government Gazette" of 8th February, 1934; it therefore follows that the Act came into full operation with the issue of such Regulations in February, 1934.

Briefly, the Act provides for a critical examination by a Veterinary Medicines Board of the statutory declarations setting out the formulæ and other particulars of the veterinary medicines, and also examination of the printed labels that must be attached to such veterinary medicines.

The Veterinary Medicines Board consists of two veterinary surgeons, a bacteriologist, and the Agricultural Chemist.

The printed label must show the net weight (or volume content), the name and address of the Queensland wholesale dealer, all directions for use, and in the case of vaccines, sera, &c., the date from which the preparation should no longer be used. In the event of any of the following substances (or compounds of same) being used in any veterinary medicine, the percentage (or proportion or amount) of same must be declared on the label.

SECOND SCHEDULE.

Acetanilide
Acetylsalicylic acid
Aconite
Adrenalin or its substitutes
Aloes
Alphacaine (A. Eucaine or Eucaine A.)
Aminophenols
Amyl nitrite
Anilides
Aniline
Antimony
Areca
Arsenic
Barbitone (Veronal)
Barium
Belladonna
Benzamine (Betacaine, B Eucaine or Eucaine B.)
Bromine or chemical compounds containing bromine
Cannabis indica
Cantharides
Carbolic acid
Carbon tetrachloride
Chlorbutol (Acetone, Chloroform, or Chloretone)
Chloral
Chloroform
Coca
Copper
Cotton Root
Creosote
Cresols (Cresylic Acid)
Digitalis
Elaterium
Ergot
Ether
Gamboge
Gelsemium
Hydrocyanic Acid
Hydroquinone
Hyoscyamus
Iodine or chemical compounds containing iodine
Isopral
Lead
Lobelia
Mercury
Naphthols
Nitroglycerin
Nux Vomica
Oil of Chenopodium
Oil of Parsley
Oil of Pennyroyal
Oil of Rue
Oil of Savin
Oil of Tansy
Paraldehyde
Opium
Paraphenylenediamine or other irritant organic bases
Phenacetin
Phenazone
Phenetidines
Phosphorus
Physostigmina
Pilocarpine
Proponal
Pyrazolones
Pyrogallic Acid
Quinolines
Resorcin
Stramonium
Strophanthus
Sulphonal
Trional

For example, mercury is included in the above list. A preparation containing *Mercurous chloride* (calomel), *Mercuric chloride* (corrosive sublimate), *Mercuric iodide*, or any other mercury compound must show the percentage (or proportion or amount) of such compound on the label.

Similarly, a preparation containing aloes, must declare the percentage (or proportion or amount) of aloes, either "ground" or as "extract," on the label.

It is provided by the Act and Regulations that everyone intending to sell veterinary medicines must first obtain a license, for which a fee of 5s. is charged. Registration of all veterinary medicines must be effected (submission of sample, label, and statutory declaration showing formula, to the Veterinary Medicines Board) by the manufacturer when resident within the State of Queensland or by the wholesale dealer (appointed by the manufacturer) when the manufacturer is resident outside of Queensland.

A charge of £1 1s. for the first veterinary medicine registered, and 5s. for subsequent registrations, with a maximum charge of £5 5s., is made. Provision has been made for the observance of the strictest secrecy as to the contents of the statutory declarations.

Up to 31st July, 1934, approximately 340 veterinary medicines had been considered by the Veterinary Medicines Board, out of which close on 240 were accepted for registration—the balance representing materials that were not labelled in accordance with the Act's requirements. About 30 of these definitely will not be accepted by the Board, as the labels make extravagant claims that are not founded on fact, and would consequently be misleading to the purchasers of such materials.

It should be noted that the Regulations do not allow labels to make claims with respect to curing (directly or by implication) diseases that are known at the present time to be incurable.

Apart from the figures quoted above, it must be understood that a considerable number of samples have been produced by so-called manufacturers who, when faced with statutory declarations and other forms that must be filled in, found that their wonderful so-called "secret" remedies would not stand being put down on paper—much less criticism by a Board numbering among its members two veterinary surgeons.

The work of the Veterinary Medicines Board consists of accepting or rejecting the formulæ forwarded by manufacturers (or agents) with respect to materials submitted for registration; also, the close examination of all claims made as to the efficiency of such materials—either on the labels or included in advertising matter connected with their sale.

It must be understood that the Act requires "taking out of licenses" and registration of materials to be made annually—on or before the thirty-first day of January each year. All registrations and licenses expire on the thirty-first day of December of the year in which they are issued.

Another important matter concerns the labelling of veterinary medicines. In cases where stocks of labelled materials are held, the Board has allowed "stickers" bearing the additional requirements not already on the labels to be pasted on such labels. When fresh stocks of labels are being printed, however, they must comply in every respect with the requirements of the Regulations. The dealer would therefore be well advised to submit proofs of intended labels to this Branch for perusal before printing perhaps thousands of copies of labels that may not be accepted by the Board, on account of the overlooking of one or more of the requirements mentioned above.

The following table sets out particulars of the veterinary medicines registered up to the 31st July of the current year:—

VETERINARY MEDICINES—1934.

VETERINARY MEDICINES PURPORTING TO COMPLY WITH SECTION SIX OF THE VETERINARY MEDICINES ACT.

Queensland Wholesale Dealer.	Sold Under the Name of—	1934 Reference No.	In Cases where the Queensland Wholesale Dealers obtain their Supplies from Sources Outside of this State, the Names of the Manufacturers or Suppliers are given.
A.C.F and Shirleys Fertilizers Ltd., Little Roma Street, Brisbane	Andrew Dryden's Famous Embrocation	105	Manufactured in Queensland
	Andrew Dryden's Famous Specific ..	106	ditto
	Andrew Dryden's Famous Worm and Condition Powders for Horses and Cattle	107	ditto
	Dairy Ointment	108	ditto
	Dryden's Invaluable Specific—for Warts on Poultry	109	ditto
	Andrew Dryden's Famous Liquid Blister	110	ditto
	Dryden's Cleansing Drench for Cattle..	111	ditto
	Andrew Dryden's Famous Blood and Water Powder	112	ditto
	Andrew Dryden's Famous Gripe Drench	113	ditto
	Dryden's Gall Cure	163	ditto
	Andrew Dryden's Famous Scour in Calves	164	ditto
J. Armitstead, Chemist, Warwick ..	Sheep Drench	140	Manufactured in Queensland
	Mawson's Horse Blister	141	ditto
The Australian Chemical Co., Ltd., Donkin Street, South Brisbane	Acco Tetrachloride Drench	92	Manufactured in Queensland
	Kreeola Tetrachloride Drench	93	ditto
	Special Sedative Drench	94	ditto
	Savol	114	ditto
Australian Disinfectant Co., Albert and Mary Streets, Brisbane	Safonia	98	Nightingale Supply Co., Ltd., Sydney, N.S.W.
A. M. Bickford and Sons, Ltd., Tank Street, Brisbane	Radiol	153	The Radiol Co., London, England
	Bone Radiol	154	ditto
	Radiol Leg Wash Powder	196	ditto
Bryce Ltd., 134 Adelaide Street, Brisbane	Pegasus Stock Drench (Concentrated)	100	Elliotts and Australian Drug Co., Ltd., Sydney, N.S.W.
	Pegavo	101	ditto
	Pagasol	115	ditto
	Pegasus Gall Cure	192	ditto
	Pegasus Worm Drench for Horses ..	212	ditto
	Bio-Blackleg Pellets	102	Biological Institute of Aust., Ltd., Sydney, N.S.W.
	Pegasus Blackleg Aggressin (Liquid) ..	103	ditto
	Pegasus Mammitis Toxiculture ..	104	ditto
O. P. Cray, Chemist, 151 Wickham Street, Valley, Brisbane	Puppy Worm Syrup	237	Manufactured in Queensland

Queensland Wholesale Dealer.	Sold Under the Name of—	1934 Reference No.	In Cases where the Queensland Wholesale Dealers obtain their Supplies from Sources Outside of this State, the Names of the Manufacturers or Suppliers are given.
Victor Dryden, 10 William Street, Lutwyche	Victor Dryden's Gripe Drench for Horses and Cattle	36	Manufactured in Queensland
	Victor Dryden's Worm and Condition Powders for Horses and Cattle	37	ditto
	Victor Dryden's Blood and Water Powders for Horses and Cattle ..	38	ditto
	Victor Dryden's Specific for Horses and Cattle	39	ditto
	Victor Dryden's Embrocation for Horses and Cattle	40	ditto
	Gall Ointment for Horses and Cattle ..	41	ditto
	Victor Dryden's Liquid Blister for Horses and Cattle	42	ditto
	Victor Dryden's Poultry Specific for the Cure of Warts on Poultry ..	43	ditto
	Victor Dryden's Scour in Calves ..	52	ditto
L. W. Finney, Market Street, Brisbane	Telson Fluke Drench	118	Telson Manufacturing Co., Pty., Ltd., Richmond, Vic.
	Telson General Purpose Drench ..	119	ditto
	Telson Poultry Powder	120	ditto
Hamilton, Pty. (Q.) Ltd., 92 Adelaide Street, Brisbane	Pro-Vet Pan-A-Ton	1	Hamilton, Pty., Ltd., Sydney, N.S.W.
	Nutrimol	2	ditto
	Pro-Vet Vaginitis Cure	3	ditto
	Pro-Vet Udderlin	4	ditto
	Pro-Vet Bloat Draught	5	ditto
	Pro-Vet Black Spot Application ..	6	ditto
	Pro-Vet Scour Remedy	7	ditto
	Pro-Vet Foot Rot Paste	8	ditto
	Pro-Vet Embrocation	9	ditto
	Pro-Vet Condition Powder	10	ditto
	Pro-Vet Liquid Blister	11	ditto
	Pro-Vet Red Blister (Sweating Blister)	12	ditto
	Pro-Vet Cough Electuary for Horses ..	13	ditto
	Pro-Vet Laxative Drench for Horses ..	14	ditto
	Pro-Vet Colic Remedy for Horses ..	15	ditto
	Pro-Vet Tonic Powders for Horses ..	16	ditto
	Pro-Vet Emulsion for Cracked Heels ..	17	ditto
	Pro-Vet Cantharides Blister	18	ditto
	Pro-Vet Pan-A-Cea	19	ditto
	Pro-Vet Diuretic or Staling Powder ..	27	ditto
	Pro-Vet " Speedo " Tonic for Dogs ..	28	ditto
	Vermi-Trol	29	ditto
	Pro-Vet Antiseptic Capsules	30	ditto
	Pro-Vet Antitoxic Drench	31	ditto
	Provetine	32	ditto
	Pro-Vet Blighty	33	ditto
	Pro-Vet Worm Mixture for Dogs ..	34	ditto
	Pro-Vet Canine Distemper Vaccine ..	82	ditto
	Hamilton Vaccine for Contagious Mammitis	83	ditto
	Pro-Vet Physic Balls for Horses ..	99	ditto
	Pro-Vet Calcium Drench	147	ditto
	Pro-Vet Worm Powders for Horses ..	148	ditto
	" Blakemere " Alterative Mixture ..	149	ditto
	Pro-Vet Cleansing Drench	188	ditto
	Pro-Vet Stock Drench—Concentrated for Pigs	189	ditto
	Pro-Vet Salve	190	ditto
	Pro-Vet Pig Powders	191	ditto
Hayes Veterinary Co., Albert House, Albert Square, Brisbane	Hayes' Udder Ointment	172	Manufactured in Queensland
	Hayes' Mange Ointment	173	ditto
	Hayes' Veterinary Ointment	174	ditto
	Hayes' Condition Powders	175	ditto
	Hayes' Cattle Blight Powders	176	ditto
	Hayes' Worm Powders for Horses ..	177	ditto
	Hayes' Cleansing Drench	178	ditto
	Hayes' Redwater Cure	179	ditto
	Hayes' Mammitis Remedy	180	ditto
	Hayes' Lampas Lotion	181	ditto
	Hayes' Barbed Wire Liniment ..	182	ditto
	Hayes' Wart Lotion	183	ditto
	Hayes' Scour Powders	184	ditto
	Lung Worm Injection	185	ditto
	Havcol	187	ditto
	Cutter Blackleg Aggressin (Solid) ..	186	The Cutter Laboratory, Berkeley, U.S.A.

Queensland Wholesale Dealer.	Sold Under the Name of—	1934 Reference No.	In Cases where the Queensland Wholesale Dealers obtain their Supplies from Sources Outside of this State, the Names of the Manufacturers or Suppliers are given.
W. Lovelock and Co., Pty., Ltd., 210 Roma Street, Brisbane	Day, Son and Hewitt's—		
	Black Physic Balls	213	Day, Son and Hewitt, Ltd., London
	" Broncholine "	214	
	" Universal " Brown Chemical Extract	215	ditto
	" Curdolix "	216	ditto
	Diuretic Balls	217	ditto
	Easakof	218	ditto
	Eye Wash	219	ditto
	Gall Ointment	220	ditto
	Gaseodyne	221	ditto
	Gaseous Fluid	222	ditto
	Globe Disinfectant	223	ditto
	Kossolian Blood Salt (General)	224	ditto
	Kossolian (Race-horse)	225	ditto
	" Colonial " Red Drench	226	ditto
	Red Paste or Condition Balls	227	ditto
	Red Worm Mixture	228	ditto
	Udder and Sore Teat Salve	229	ditto
	Vetalenta	230	ditto
	Wart Solvent	231	ditto
	White Chemical Extract	232	ditto
	Worm Balls	233	ditto
	Non-poisonous Worm Pellets	234	ditto
	Xemos	235	ditto
D. MacLean and Co., Perry House, Elizabeth Street, Brisbane	Baxter's—		
	No. 1 Worm Capsules	57	Manufactured in Queensland
	Alterative Mixture	59	ditto
	Kidney and Bladder Pills	60	ditto
	Eczema, Red Mange, Itch and Blotch Lotion	61	ditto
	Husk Mixture	62	ditto
	No. 2 Worm Capsules	205	ditto
	No. 3 Worm Capsules	206	ditto
	Distemper Capsules	207	ditto
	Skin and Blood Pills	208	ditto
	Worm Powder for Dogs	209	ditto
	Puppy Worm Syrup	210	ditto
	Red Tonic	236	ditto
Mactaggart's Primary Producers' Co-op. Assn. Ltd., 70-72 Eagle Street, Brisbane	Cutter Blackleg Aggressin (Solid)	143	The Cutter Laboratory, Berkeley, U.S.A.
	Mactaggart's Carbon Tetrachloride Fluke and Worm Drench	144	Manufactured in Queensland
	Equinoint	145	Goodalls, Ltd., Birtley, England
W. E. Moase, Prospect St., Wynnum	Alterative and Condition Powder for Horses and Cattle	70	Manufactured in Queensland
	Moase's—		
	Famous Drench for Cattle	71	ditto
	Famous Dairy Ointment	72	ditto
	Famous Ointment for Hard Udders, &c.	73	ditto
	Famous Blister	74	ditto
	Famous Draught for Horse or Cow	75	ditto
	Famous Eye Specific	76	ditto
	Famous Specific for Worms in Calves, Sheep, &c.	77	ditto
	Famous Diarrhœa or Scour Mixture	78	ditto
	Famous Liniment	79	ditto
	Special Liniment	80	ditto
	Famous Antiseptic Disinfectant Deoderant	81	ditto
New Zealand Loan and Mercantile Agency Co., Ltd., Eagle Street, Brisbane	Cooper's (Improved) Worm Table	161	Wm. Cooper and Nephews (Aust.), Ltd., Sydney, N.S.W.
	Cooper's Lavene (Improved)	162	
W. A. Noble and Sinnamon, Ruthven Street, Toowoomba	Noble's Worm Specific for Puppies	155	Manufactured in Queensland
	Noble's Scour Specific for Calves	156	ditto
	Noble's Blight Specific for Cattle and Horses	157	ditto
	Noble's Elbon Dog Alterative	158	ditto
	Noble's Mange Specific	159	ditto
	Noble's Vettoll	160	ditto

Queensland Wholesale Dealer.	Sold Under the Name of—	1934 Reference No.	In Cases where the Queensland Wholesale Dealers obtain their Supplies from Sources Outside of this State, the Names of the Manufacturers or Suppliers are given.
Norris Agencies Pty., Ltd., 639 Ann Street, Valley	Sidolia	53	Manufactured in Queensland
	CN Disinfectant (25 per cent.)	54	West Disinfecting Co., New York, U.S.A.
R. O'Reilly, Agent, 26 Cintra Road, Bowen Hills	Parke, Davis and Co.'s Fluke and Worm Drench	55	Parke, Davis and Co., Sydney (also Canada and U.S.A.)
	Nema Worm Drench	56	ditto
	Nema Worm Capsules	65	ditto
	Blackleg Vaccine (Blacklegoids) Single	66	ditto
	Blackleg Vaccine (Blacklegoids) Double	67	ditto
	Tetanus Antitoxin (Veterinary)	68	ditto
	Worm and Fluke Drench (Special)	195	ditto
Outridge Chemical Co., Wondai	"Burnett" Worm Drench Powder	193	Manufactured in Queensland
The Poultry Farmers' Co-op. Society, Ltd., Roma Street, Brisbane	"Red Comb" Roup Cure	84	Manufactured in Queensland
	"Red Comb" Wart Preventative	85	ditto
	"Red Comb" Chick Tonic	87	ditto
	"Red Comb" Eye Roup Cure	88	ditto
	"Red Comb" Scaly Leg Ointment	89	ditto
	"Red Comb" Bronchitis Cure	90	ditto
	"Red Comb" Worm and Condition Powders for Horses and Cattle	91	ditto
	"Red Comb" Veterinary Iodine	95	ditto
	"Red Comb" Cleansing and Tonic Drench	96	ditto
	Healo	97	ditto
	"Red Comb" Worm Capsules	86	Chemico Products, Ltd., Sydney, N.S.W.
Robinson and Bott, Pty., Ltd., 459 Adelaide Street, Brisbane	Rawleigh's—		
	Colic and Bloat Ease	47	The W. T. Rawleigh Co., Ltd., Melbourne, Vic.
	Veterinary Embrocation	48	ditto
	Stock Tonic	49	ditto
	Poultry Powder	50	ditto
	Roup Powder	51	ditto
Surgical Supplies Ltd., 246 Queen Street, Brisbane	S.S. Dairy Ointment	63	Manufactured in Queensland
	S.S. Heal-All Ointment	64	ditto
	Dr. Metcalfe Sharpes Application	165	ditto
	S.S. Reliable Embrocation	166	ditto
	S.S. Udder Specific	197	ditto
	S.S. Vaginal Kugloids	198	ditto
	Dutton's Mange Specific	199	ditto
	Dutton's Redwater Cure	200	ditto
	S.S. Scour Cure	201	ditto
	S.S. Cleansing Drench	202	ditto
	S.S. Lung Worm Specific	203	ditto
	S.S. Scour Powders	204	ditto
	Flea Soap	211	John Stewart and Son, Sydney
Taylors, Elliotts, and Australian Drug Pty., Ltd., 154 Charlotte Street, Brisbane	"Austral"—		
	Cleansing Drench	20	Manufactured in Queensland
	Veterinary Embrocation	21	ditto
	Barb Wire Embrocation	22	ditto
	Dairy Ointment	23	ditto
	Gripe Drench	24	ditto
	Gall Ointment	25	ditto
	Worm and Condition Powders	26	ditto
	Horse Blister	35	ditto
	Bolton's Gall Cure	167	ditto
	Taylor's Alterative Worm and Condition Powders	168	ditto
	Reliable Veterinary Embrocation	169	ditto
	"Signal" Barbed-Wire Embrocation	170	ditto
	Safety Black Oils	171	ditto
	Barko Tasteless Condition Powders	194	ditto
	Skinner's Ointment	116	Skinner's Ltd., Sydney, N.S.W.
	Skinner's Cleansing and Tonic Drench	117	ditto
	Row's Embrocation	146	Edward Row and Co., Sydney, N.S.W.
H. G. Tudor, Russell Street, Toowoomba	Condition Powders for Horses	44	Manufactured in Queensland
	Stock Cough Paste	45	ditto
	Vaginitis Powder	46	ditto
United Chemical Co., Pty., Ltd., 158 Grey Street, South Brisbane	"United" Fluke and Worm Drench	69	Manufactured in Queensland
	"United" Concentrated Arsenic and Epsom Salts Liquid Drench	238	ditto

Queensland Wholesale Dealer.	Sold Under the Name of—	1934 Reference No.	In Cases where the Queensland Wholesale Dealers obtain their Supplies from Sources Outside of this State, the Names of the Manufacturers or Suppliers are given.
J. C. Ure, 244 Charlotte Street, Brisbane	Victus—		
	Worm and Fluke Drench	121	Fraser Henderson, Pty., Ltd., Melbourne, Vic.
	Stock Drench	122	ditto
	Concentrated General Antiseptic	123	ditto
	Antiseptic Ointment	124	ditto
	Poultry Powder	125	ditto
	Concentrated Iodised Mineral Supplement	126	ditto
Webster and Co., Ltd., Mary Street, Brisbane	Mag-O-Tol	142	Vitalick, Ltd., Sydney, N.S.W.
Wilcox, Mofflin, Ltd., Longland, Street, Brisbane	Tetralene	150	Wilcox, Mofflin, Ltd., Sydney, N.S.W.
	Wilmolene	151	ditto
	Red Spot, Double Strength	152	ditto
L. A. Wilkinson (Northern) Pty., Ltd., 44 Queen Street, Brisbane	Wilkinson's Cleansing Drench	127	Manufactured in Queensland
	Wilkinson's Condition Powder	128	ditto
	Vetsalve	129	ditto
	Wilkinson's Worm Powder	130	ditto
	The L. P. Barb Wire Embrocation	131	ditto
	Wilkinson's—		
	Laxative Dog Syrup	132	ditto
	Dog Tonic	133	ditto
	Canker Lotion for Dogs	134	ditto
	Mange Lotion for Dogs	135	ditto
	Eye Ointment for Dogs	136	ditto
	Distemper Capsules	137	ditto
	Dog Worm Capsules	138	ditto
	Poultry Tonic	139	ditto

It has been found necessary for purposes of administration to appoint three officers of the Seeds, Fertilizers, Stock Foods, and Pest Destroyers Branch, to be inspectors, for the purpose of the Veterinary Medicines Act—one of whom, also to act as secretary to the Veterinary Medicines Board. In this manner, the outside administration of the Act, as well as the preliminary consideration of documents to be submitted to the Board, is in the hands of officers who have had many years' experience in work of a similar character.

The gradation from materials defined under the Stock Foods Acts as licks and mineral feeds, to materials of a similar nature (tonics, &c.) claimed to be veterinary medicines, is almost imperceptible. In a like manner the difference between certain phenolic preparations registered under the Pest Destroyers Act and the same or similar preparations claimed to be veterinary medicines is also hard to define. Consequently, the connection between materials requiring to be registered under the Veterinary Medicines Act and materials requiring to be registered under the other Acts controlled by this Branch, being obvious, it will be seen that the various materials are likely to be stored together; the storage is also controlled to a certain extent by the Poisons Regulations, requiring all materials of a poisonous nature to be stored in a special cupboard. Thus, the experience of officers already acquainted with the other Acts is of utmost importance when the administration of the Veterinary Medicines Act is to be considered.

It should be noted that such officers already, under the Pest Destroyers, Fertilizers, Stock Foods, and Seeds Acts, have free access at any reasonable time to any building, place, ship, vessel, or vehicle, where any material coming under the Act in question is, or is suspected to be prepared, or kept for sale, or had in possession, or in transit.

The Branch in question deals with all advisory work in connection with filling in of forms, the handling of applications for registration and the receipt of applications for license and the issuing of same; also as different parts of the State are visited in connection with the administration of the other Acts controlled by the Branch, opportunity is taken by the officers mentioned above to get in touch with resident stock and dairy inspectors who are acting in a general way as inspectors under the Veterinary Medicines Act.

The full effect of this legislation cannot be at present seen. There are indications, however, that the present work of the Board will be the means of far greater control in the future than seemed possible at the inception of the Act.

PASTURE IMPROVEMENT, 1934.

After two years of very erratic rainfall, and more or less droughty conditions, we were favoured during the year just ended with good rains and genial weather for the growth of plants in several parts of the State where conditions normally are somewhat dry.

Although this is to the farmers' advantage, one cannot help reflecting that somewhat erroneous values may be attributed to grasses and clovers that have given success under conditions that normally could not be relied on.

During the last few years greater attention has been given to the problems associated with pasture improvement, in particular with areas of assured rainfall capable of giving good results with grasses such as *Paspalum dilatatum,* also with some drier areas that normally will not carry grasses and clovers of the kinds associated with Nerang and Maleny conditions.

The value of short young grass grazed during the early stages of growth has been emphasised by many analyses made by the Agricultural Chemist representing a varied collection of forage plants grown principally in the Southern portions of the State.

Although it is somewhat difficult to collect the whole of the analyses available with the explanatory notes, the table should be of value for future guidance, and appears to be appreciated in other parts of the Empire, as many inquiries for copies of the reports dealing particularly with nutritive value of grasses and other plants indicate that our efforts have not been lost sight of.

The experiments carried out during the last decade indicate the necessity for a thorough preparation of the land before any of the higher nutritive grasses can achieve a full measure of success, in particular with areas carrying creeping or mat grasses that are strong growers during the summer period of heavy rainfall, therefore, in some instances, choking out the winter grasses that are so badly needed in Southern Queensland to give good grazing from May until the commencement of the summer rains at the end of November or December.

Of the winter grasses at present appearing to be of great value, one can mention the perennial strain of canary known as *Phalaris tuberosa,* also what in Queensland appears to be a perennial strain of Bromus, known as *Bromus marginatus,* which has persisted under adverse conditions during two years of droughty conditions, making good active growth when reasonable rainfall occurred. Instances as to the value of native grasses have been fortunately brought to mind by experiments carried out in one of the drier areas of the State, where the owner ploughed up a small area and sowed some with grasses such as Mitchell and Flinders. The favourable weather already alluded to considerably assisted in the success of this experiment. One must not, however, overlook the fact that such results are obtained by giving the land in the first instance reasonable cultivation. In other cases it is known that after the land has been ploughed and sown with a crop such as wheat, the native grasses have re-established themselves with added vigour, proving definitely the value of such cultivation.

To better explain the whole matter, the accompanying table gives the highest protein, as well as the lowest protein, in grasses, clovers, and allied plants. In each case it will be noted that short young grass has the highest feeding value.

Before considering the table, which may be handy for future reference, it is well to note that the analyses are calculated on "dry basis," that is to say, on water-free material. The late Mr. Brunnich, for many years Agricultural Chemist to this Department, frequently pointed out in his booklet that the moisture content of grasses when cut often exceeded 75 per cent. When one considers that four-fifths or even more of the total weight of grasses and clovers when cut may consist of water, which would be present in varying amounts according to the age of the plant and weather conditions, it is obvious that no real comparison of one grass or plant against another can be made unless the whole material is brought to a common basis as far as the water content is concerned; therefore, in the following table, the percentages of crude protein, crude fat, and crude fibre are given on a dry basis, which permits of a quicker comparison of the various materials. As an explanation, young grass reported to contain 20 per cent. of crude protein in the dry matter would contain only 5 per cent. of crude protein in the green stage, assuming 75 per cent. of moisture was present. On the other hand, assuming that grass in the hay stage contains 10 per cent. moisture and 18 per cent. crude protein, the crude protein content on a dry basis would be 20 per cent. Wherever reference is made to protein, fat, and fibre, the reference means crude protein, crude fat, and crude fibre, and as far as the farmer is concerned it should always be kept in mind that the crude protein and fat should be high, and the crude fibre low.

COMPARATIVE ANALYSES OF GRASSES, CLOVERS, AND OTHER FORAGE PLANTS.

Kind of Plant.	Duration of Plant in Queensland.	Analyses :— Highest and Lowest recorded Crude Protein. ‡	Water-free Material.					Remarks.
			Crude Protein.	Crude Fat.	Crude Fibre.	Analysis of Ash.		
						Lime.	Phos. Acid.	
			%	%	%	%	%	
Clovers and Allied Plants.								
Lucerne	Perennial ..	Highest ..	29·4	1·2	17·0	1·979	1·010	Young leafy growth, pre-flowering stage.
		Lowest ..	18·4	1·2	32·6	3·545	·679	Old mature growth with seed pods showing.
Red Clover	May last a few years	Highest ..	29·1	2·5	14·3	2·979	·557	Leafy, 17 weeks after sowing.
		Lowest ..	19·0	1·6	17·8	3·540	·790	Hay stage.
White Clover	Perennial ..	Highest ..	29·9	1·5	16·9	1·569	1·185	Young leafy growth
		Lowest ..	18·1	1·5	22·1	2·078	·528	Old, ill-natured growth.
Lotus corniculatus	Perennial ..	Highest ..	14·8	1·6	15·2	1·355	·386	Leafy growth.
		Lowest ..	13·1	1·4	23·1	2·745	·980	In seed head.
Stylosanthes mucronata (the so-called Wild Lucerne of North Queensland)	Annual ..	Highest ..	15·2	1·4	23·7	1·717	·529	Green, succulent growth.
		Lowest ..	13·5	1·5	32·1	1·534	·243	Older growth.
Subterranean Clover	Annual ..	Highest ..	21·3	1·8	17·1	2·431	·403	Young leafy growth.
		Lowest ..	17·4	1·7	18·7	2·726	·367	Leafy, with flowers appearing.
Berseem Clover (*Trifolium alexandrinum*)	Annual ..	..	13·1	1·4	20·0	3·956	·709	Hay stage of growth.
Hop Trefoil (*Medicago lupulina*)	..	..	15·5	1·8	18·7	2·398	·856	In hay stage.
Indigofera endecaphylla	..	..	14·0	1·9	20·6	3·394	·472	Green leaf and stem.
Lespedeza striata	Annual ..	Highest ..	17·0	2·8	19·9	1·592	·571	Young leaf, with fine stem.
		Lowest ..	11·2	1·8	31·4	1·053	·483	Stemmy.
Lespedeza stipulacea	Annual ..	Highest ..	19·5	2·2	21·9	1·300	·638	Young leaf, with fine stem.
		Lowest ..	15·7	2·0	30·6	1·297	·722	Hay stage, leafy, fine stem, in flower.
Lespedeza sericea	Perennial ..	Highest ..	15·7	1·9	20·0	1·340	·651	Young leaf, with fine stem.
		Lowest ..	10·8	2·3	28·3	1·111	·332	Flowering ; stems woody.
Cicer arietinum	Annual ..	..	19·1	1·7	20·3	2·160	·694	Young leaf and stem.
Sainfoin (*Onobrychis sativa*)	..	..	15·0	2·2	18·0	2·071	·585	Hay stage.
Cereals (Annuals).								
Wheat	..	Highest ..	33·0	3·4	19·7	·836	1·611	Eight weeks from date of sowing.
		Lowest ..	20·8	2·7	27·2	·789	1·049	
Wheat	..	Highest ..	15·5	3·3	28·3	·511	·919	Second growth six weeks from first grazing.
		Lowest ..	10·2	2·7	27·9	·484	·721	
Oats	..	Highest ..	33·3	3·1	20·8	..	..	Eight weeks from date of sowing.
		Lowest ..	24·3	4·0	23·6	1·300	1·362	
Oats	..	Highest ..	17·8	3·3	21·7	1·223	1·143	Second growth six weeks from first grazing.
		Lowest ..	13·3	3·6	26·1	·715	·975	
Barley (Cape)	..	Highest ..	28·9	3·0	21·9	1·026	1·178	Eight weeks from date of sowing.
		Lowest ..	28·6	2·8	20·6	1·011	1·083	
		Highest ..	11·2	2·5	27·4	·464	·690	Second growth six weeks from first grazing.
		Lowest ..	10·5	2·3	29·6	·508	·698	
Barley (Skinless)	..	Highest ..	25·8	3·1	26·3	·828	1·151	Eight weeks from date of sowing.
		Lowest ..	22·3	2·5	25·5	·968	1·037	
Rye (*Secale cereale*)	..	Highest ..	29·8	3·7	23·6	1·148	1·437	Eight weeks from date of sowing.
		Lowest ..	25·2	3·5	22·8	1·221	1·147	
		Highest ..	12·0	2·6	31·5	·623	·609	Second growth six weeks from first grazing.
		Lowest ..	10·1	2·1	30·5	·529	·631	
Millets (Annuals).								
Setaria italica (Tall Late)	..	Highest ..	15·7	1·7	25·3	1·480	·800	Seven weeks from date of sowing; leafy seed heads not yet appearing.
		Lowest ..	14·7	1·7	25·1	1·637	·772	Seven weeks from date of sowing; leafy; seed heads not yet appearing.
Setaria italica (Short Early)	..	..	10·7	1·3	32·4	·647	·696	Seven weeks from date of sowing; in seed head.
Japanese Millet (*Echinochloa crus-galli* var. *edulis*)	..	..	15·9	1·5	26·2	1·768	·937	Seven weeks from date of sowing; seed heads forming.
White Panicum (*Echinochloa crus-galli* sp. syn. *E. frumentacea*)	..	Highest ..	23·0	1·6	19·6	2·590	1·368	Seven weeks from date of sowing; young leafy growth.
		Lowest ..	3·6	0·6	31·7	·625	·164	Seven months from date of sowing; stems soft and leafy; seed ripe.
White French Millet (*Panicum miliaceum*)	..	..	13·2	1·3	27·7	·814	·767	Seven weeks from date of sowing; seed heads forming.
Pearl Millet (*Pennisetum typhoideum*) ..	..	..	15·0	1·0	33·1	1·028	·485	Nine weeks from date of sowing; height five feet; seed heads forming; hard stems; dark-green leaves.

Sorghums.

See Special Table for Comparative Chemical Analyses and H.C.N. content.

Kind of Plant.	Duration of Plant in Queensland.	Analyses :— Highest and Lowest recorded Crude Protein. ‡	Crude Protein.	Crude Fat.	Crude Fibre.	Lime.	Phos. Acid.	Remarks.
Other Forage Plants.								
Lamb's Tongue (*Plantago lanceolata*) ..	..	Highest ..	18·9	1·9	16·6	2·421	·444	Sometimes called Rib Grass; young green leaf, readily eaten by stock.
		Lowest ..	17·0	1·3	11·9	4·092	·677	
Sheep's Burnet	Perennial ..	Highest ..	24·0	2·4	16·9	1·320	·592	Young green leaf.
		Lowest ..	13·7	2·5	16·1	2·128	·636	Old growth.
Salt Bush (*Atriplex nummularia*) ..	Perennial ..	..	23·1	1·2	10·4	1·755	·552	Young shoots.
			19·9	1·2	13·0	1·661	·485	Flowering shoots.

COMPARATIVE ANALYSES OF GRASSES, CLOVERS, AND OTHER FORAGE PLANTS—*continued.*

Kind of Plant.	Duration of Plant in Queensland.	Analysis:— Highest and Lowest recorded Crude Protein. ‡	WATER-FREE MATERIAL.					Remarks.
						ANALYSIS OF ASH.		
			Crude Protein.	Crude Fat.	Crude Fibre.	Lime.	Phos. Acid.	
			%	%	%	%	%	
			GRASSES.					
ye Grass (New Zealand Certified Perennial)	Perennial ..	Highest ..	21·6	2·9	19·3	1·025	·954	Short young grass.
		Lowest ..	12·7	1·1	22·3	·718	·938	Growth after several grazings.
ye Grass (Pseudo Perennial)	Dies out during second year	Highest ..	26·8	2·6	21·2	1·042	1·118	Short young grass.
		Lowest ..	13·2	2·6	23·6	..	..	Growth after several grazings.
ye Grass (Italian)	Annual ..	Highest ..	22·7	1·9	19·9	1·000	·986	Short young grass.
		Lowest ..	10·6	1·8	20·9	..	..	Growth after several grazings.
ye Grass (Wimmera)	Annual ..	Highest ..	24·7	2·3	19·7	1·014	1·189	Short young grass
		Lowest ..	6·8	1·7	22·5	..	..	Growth after several grazings.
halaris tuberosa	Perennial ..	Highest ..	25·9	2·9	19·6	·503	·338	Short young grass.
		Lowest ..	16·8	3·8	27·7	·818	1·132	Growth after several grazings.
halaris minor	Annual ..	Highest ..	19·8	1·5	30·2	·399	·448	Short young grass.
		Lowest ..	8·8	1·9	32·3	·278	·313	In seed head.
halaris canariensis	Annual ..	Highest ..	16·0	2·1	29·9	·244	·436	Young grass.
		Lowest ..	16·5	2·9	30·3	·177	·282	In seed head.
halaris stenoptera	Perennial	..	15·5	3·4	26·3	·377	·624	Green leaf, 20 weeks after sowing.
ocksfoot (*Dactylis glomerata*)	Perennial ..	Highest ..	21·9	3·4	17·5	·643	·365	Short young grass.
		Lowest ..	10·6	3·3	31·0	·828	·946	Growth after several grazings.
airie Grass (*Bromus unioloides*) ..	Annual ..	Highest ..	29·2	3·6	19·3	1·142	·827	First cut eight weeks from date of sowing.
		Lowest ..	5·0	1·7	31·9	..	..	Second cut twenty weeks from date of last cut.
omus marginatus	Perennial ..	Highest ..	23·4	3·6	22·8	·507	·423	Leaf only, twenty weeks from date of sowing.
		Lowest ..	13·8	1·9	30·0	·429	·303	In full seed head, stems green.
ll Fescue	Perennial ..	Highest ..	18·6	2·4	21·7	·678	·471	Short young grass.
		Lowest ..	10·9	3·8	25·3	·731	·786	Eighteen weeks from first cut.
eadow Fescue	..	Highest ..	22·3	3·7	19·5	·848	·396	Sixteen weeks after first cut.
		Lowest ..	21·6	3·5	18·7	·677	·360	Sixteen weeks after first cut.
hewings Fescue	..	Highest ..	18·5	3·8	24·9	·828	·813	Twenty-four weeks from date of sowing.
		Lowest ..	13·6	4·6	26·2	·860	·827	Fourteen weeks after first cut.
reeping Red Fescue	..	Highest ..	17·5	2·9	24·6	·760	·704	Twenty-four weeks from date of sowing.
		Lowest ..	10·6	4·1	27·5	·774	·622	Fourteen weeks after first cut.
entucky Blue Grass (*Poa pratensis*) ..	..	Highest ..	16·4	2·9	21·6	1·042	·610	Young growth.
		Lowest ..	13·5	3·9	26·4	·631	·586	In seed head.
ough Stalked Meadow Grass (*Poa trivialis*)	..	..	12·4	2·2	18·4	1·519	·613	In seed head.
rown Top Grass (*Agrostis tenuis*) ..	..	Highest ..	15·7	3·0	25·2	·948	·694	Young growth.
		Lowest ..	10·1	3·6	26·9	·864	·596	In the seeding stage.
imothy Grass (*Phleum pratense*) ..	..	Highest ..	14·0	3·3	23·8	·985	·647	Young growth.
		Lowest ..	8·2	2·6	24·7	·764	·494	In seed head.
spalum dilatatum	Perennial ..	Highest ..	20·6	1·6	23·7	·412	·618	Short young grass 6 inches high.
		Lowest ..	4·1	0·9	41·4	·239	·139	Stemmy, with ripe seed heads.
odes Grass (*Chloris gayana*)	Perennial ..	Highest ..	16·4	1·7	27·1	1·199	·724	Young leafy growth.
		Lowest ..	5·6	1·2	37·3	·301	·226	In full seed head, stemmy leafy.
uch Grass (*Cynodon dactylon*)	Perennial ..	..	18·2	1·3	23·5	·868	·607	Leafy growth, with seed heads.
lue Couch (*Digitaria didactyla*).. ..	Perennial ..	..	18·3	2·0	24·4	·522	·776	Leafy growth.
f Grass	Annual ..	Highest ..	9·7	1·5	27·5	·677	·701	Young leafy growth.
		Lowest ..	5·0	1·2	32·0	..	..	In full seed head, eighteen weeks from date of sowing.
inea Grass (*Panicum maximum*) ..	Perennial	Highest ..	13·1	0·9	25·8	1·278	·757	Young leafy growth.
		Lowest ..	4·5	0·6	39·7	·410	·148	Stemmy in seed head.
e Panic Grass (*Panicum antidotale*)..	Perennial ..	Highest ..	19·2	1·9	19·5	·542	·365	Young green leaves only.
		Lowest ..	6·2	0·7	30·4	·347	·476	Dry stemmy growth.
nicum mulicum	Perennial ..	Highest ..	24·8	0·6	23·2	·666	·675	Young leafy growth.
		Lowest ..	5·8	1·0	38·0	·368	·208	Stemmy growth.
kuyu (*Pennisetum clandestinum*) ..	Perennial ..	Highest ..	16·7	1·4	31·2	·436	·884	Young growth ; note high fibre content.
		Lowest ..	8·8	1·4	27·1	·416	·697	Short grass from old plants.
asses Grass (*Melinis minutiflora*) ..	..	Highest ..	11·9	1·4	28·4	·244	·239	Young leaf only.
		Lowest ..	3·3	0·8	40·8	·416	·172	Coarse stemmy growth after seeding.
ephant Grass (*Pennisetum purpureum*)	Perennial ..	Highest ..	21·0	1·5	23·2	·764	·429	Young shoots up to 6 inches high.
		Lowest ..	7·0	0·7	44·1	·197	·081	Two feet from bottom ; cut from 7-feet stalks.
wcane (Chinese x Java)	Lasts several years	..	12·8	1·1	31·0	1·089	·731	Young new growth, seven months from date of planting.
		..	2·2	0·6	27·6	·284	·181	First ratoon, seven months from date of last cutting.
			3·4	1·0	30·0	·344	·217	Second ratoon, seven months from date of last cutting.
pyrum cristatum	..	..	16·6	4·3	29·0	·289	·505	Leafy growth.
ebla elymoides	..	Highest ..	16·1	2·1	32·5	·856	·394	Young leaf and stem.
		Lowest ..	8·0	1·3	35·8	·337	·113	Harsh, stemmy, with old seed heads.
ebla lappacea	..	Highest ..	17·8	1·4	27·5	·873	·426	Young leaf and stem.
		Lowest ..	11·4	1·1	30·1	·496	·293	Dry stemmy growth.

*Propagated from roots and/or cuttings.
†Not recommended for general Queensland conditions.

COMPARATIVE ANALYSES OF GRASSES, CLOVERS, AND OTHER FORAGE PLANTS—*continued.*

Kind of Plant.	Duration of Plant in Queensland.	Analysis :— Highest and Lowest recorded Crude Protein ‡	Water-free Material.					Remarks.
			Crude Protein.	Crude Fat.	Crude Fibre.	Analysis of Ash. Lime.	Phos. Acid.	
			%	%	%	%	%	
Astrebla squarrosa	..	Highest ..	17·4	1·3	27·1	·876	·378	Young leaf and stem.
		Lowest ..	8·8	0·9	31·3	·501	·228	Dry stemmy harsh.
Astrebla triticoides	..	Highest ..	8·9	1·2	31 1	·125	·117	After seeding, coarse dry stems.
		Lowest ..	6·7	0·7	36·3	·411	·113	Harsh, wiry, with old seed heads.
Agropyrum intermedium	..	..	15 6	4 0	27·2	·394	·485	Leafy growth.
Amphilophis erianthoides	..	..	9·0	2·3	31·7	·503	·436	Leafy growth.
Bromus arduennensis	..	..	14·2	2·4	29·8	·388	·336	Green leaf and stem.
Bromus breviaristatus	..	..	17 5	3·6	30·6	·560	·547	Green leafy growth.
Bromus inermis	..	.	21 3	3 6	25 4	·353	·832	Green leafy growth.
Bromus polyanthus	..	..	14 7	3·4	30·6	·530	·565	Green leafy growth.
Brachiaria decumbens	..	Highest ..	15·4	1·5	26 0	·450	·342	Young leaf and stem.
		Lowest ..	9 6	0·8	35·1	·323	·179	Stemmy, leafy.
Brachiaria miliiformes	..	Highest ..	22·6	1·6	23·8	·559	·517	Young leafy growth.
		Lowest .	5·1	1·0	30·1	·352	·287	Green stemmy growth.
Capillipedium parviflorum	..	.	9·5	1·8	32·1	·365	·318	Dry leafy growth.
Chloris canterai	..	..	7·1	1 3	30·5	·376	·298	In full seed head, leafy, stemmy, dry soft.
Chloris divaricata	..	..	17·8	1·4	27·4	·662	·399	Short young grass.
Chloris inflata	..	Highest ..	18·0	1·5	23·6	·824	·400	Short green growth.
		Lowest ..	6·2	1·0	37·6	·200	·167	In full seed head, stemmy, green.
Chloris pectinata	..	Highest ..	16 9	1·5	27·2	·605	·336	Short green leaf.
		Lowest .	4 5	1·2	33·9	·424	·300	In full seed head, stemmy, leafy.
Chloris pycnothrix	..	Highest .	20·9	1 5	26·2	·620	·592	Young growth coming into seed head.
		Lowest ..	6·2	0 8	36·7	·507	·166	In full seed head.
Chloris virgata	..	Highest ..	19·0	1·5	28·5	·561	·405	Young leafy growth.
		Lowest	4·9	1·0	37 9	·363	·117	In full seed head, stemmy little leaf, soft.
Dactyloctenium ægyptium	..	..	17·3	1·3	27·9	1.490	·464	Young leaf and stem.
Dactyloctenium radulans	.		6·6	0·5	31·8	·969	·267	Stemmy growth.
Danthonia pilosa	..	..	8·9	1·0	35·8	·548	·515	In seed head.
Danthonia semiannularis (Wallaby Grass)	..	Highest ..	12·1	3·2	30·6	·790	·471	Young growth.
		Lowest ..	6·2	0·6	38·9	·351	·319	In seed head.
Dichanthium sericeum (Queensland Blue Grass)	..	Highest ..	15·0	1·8	31·4	·675	·743	Short young grass.
		Lowest ..	4·0	1·3	37·1	·295	·217	In seed head.
Dichanthium superciliatum	..	Highest ..	17·0	1·4	28·3	·956	·470	Young leafy growth.
		Lowest ..	5·1	1·6	41·2	·373	·313	Stemmy growth.
Digitaria Brownei	..	..	5·6	1·1	40·0	·320	·203	Dry stemmy growth.
Digitaria milanjiana	..	.	7·0	1·7	31·9	·349	·202	Green, leafy growth.
Digitaria pentzii	..	..	6·5	0·8	37·9	·236	·216	Stemmy growth.
Echinochloa Crus-galli (Wild Millet)	..	..	13·4	1·2	28 7	·596	·676	Young leafy growth.
Ehrharta calycina	..	Highest ..	24·7	2·4	22·7	·810	·348	Young leafy growth.
		Lowest ..	10·9	2·3	31·7	·556	·553	Green stems and seed heads.
Eleusine indica	..	..	24·9	2·6	13·1	1·963	1·256	This is an example of an unpalatable wee with a high protein content.
Eragrostis superba	..	Highest ..	11·4	1·2	31·0	·273	·319	Young leaf and stem.
		Lowest ..	4·6	0·9	33·1	·350	·241	Stemmy, seed ripe.
Eragrostis tenuifolia	..	Highest ..	15·9	2·3	31·2	·397	·345	Young leaf and stem.
		Lowest ..	5·8	1·2	38·2	·324	·257	Dry leaf, seed ripe.
Eriochloa sp. (Summer Grass)	..	Highest ..	17·2	1·2	20·2	·848	·483	Young leafy growth.
		Lowest ..	5·0	1·2	42·3	·194	·198	Stemmy growth.
Eulalia fulva	..	..	7·4	1·1	39·1	·233	·262	Stemmy growth.
Iseilema actinostachys (Flinders Grass)	..	Highest ..	9·9	2·5	34·9	·408	·409	Young leafy growth.
		Lowest ..	4·6	1·1	39·4	·249	·264	In ripe seed head.
Iseilema vaginiflora (Flinders Grass)	..	Highest ..	11·7	1·9	34·0	·507	·415	Young leafy growth.
		Lowest ..	4·9	1·0	35·9	·250	·250	In ripe seed head.
Ixophorus unisetus	..	Highest ..	17·7	1·1	23·3	·502	·334	Young succulent growth, with few seed heads
		Lowest ..	7·1	1·7	30·3	·397	·411	Old leafy growth.
Panicum decompositum	..	..	6·4	1·0	38·6	·196	·298	Dry stemmy growth.
Paspalidium cœpitosum (Brigalow Grass)	..	Highest ..	21·0	1·0	25·3	·344	·390	Short young grass.
		Lowest ..	6·7	0·7	32·9	·224	·304	In full seed head.
Paspalidium globoideum	..	Highest ..	19·0	1·3	23·6	·394	·421	Young leafy growth.
		Lowest ..	5·0	1·0	38·9	·271	·229	In ripe seed head.
Paspalum conjugatum	..	..	5·5	0·9	29·2	·421	·329	Leafy growth, in seed head.
Pennisetum cenchroides	..	Highest ..	20·4	2·4	20·7	·590	·415	Young leaf and stem.
		Lowest ..	5·6	1·2	30·4	·250	·154	Dry stemmy growth.
Pennisetum ciliare	..	Highest ..	20·5	1·9	23·9	·424	·420	Short young grass.
		Lowest ..	4·6	1·7	40·1	·250	·171	Dry stemmy growth.
Phalaris cœrulescens	..	..	16·4	4·0	26·0	·287	·586	Green leafy growth.

PARATIVE ANALYSES OF GRASSES, CLOVERS, AND OTHER FORAGE PLANTS—*continued.*

Kind of Plant.	Duration of Plant in Queensland.	Analyses :—Highest and Lowest recorded Crude Protein. ‡	Water-free Material.					Remarks.
						Analysis of Ash.		
			Crude Protein.	Crude Fat.	Crude Fibre.	Lime.	Phos. Acid.	
			%	%	%	%	%	
etaria Australiensis	..	Highest ..	24·2	2·2	20·5	·618	·503	Short young grass.
		Lowest ..	6·0	0·9	37·9	·271	·180	Dry growth.
etaria glauca	..	Highest ..	23·1	1·9	22·6	·394	·499	Young leafy growth.
		Lowest ..	8·9	1·3	32·0	·352	·293	Stemmy growth.
hemeda avenacea	..	Highest ..	17·8	1·8	23·4	·461	633	Short young grass.
		Lowest ..	6·1	1·4	36·1	·300	·250	Stemmy growth, few leaves.
rochloa pullulans	..	Highest ..	13·3	0·9	32·7	·629	·717	Leafy growth.
		Lowest ..	5·8	0·8	36·8	·377	·266	Stemmy growth.

‡The highest and lowest recorded Crudé Proteins refer only to definite analyses of verified samples, representing Pasture Experiment trials in different stages of growth. It is quite possible to get lower figures if ill-natured growth from starved land were analysed.

After reading the foregoing table setting out the analyses of different grasses, clovers, and other forage plants, it is well to recognise that the nutritive value of pasture plants depends largely on their being fed off in their early stages of growth; therefore the feeding properties of pastures are primarily a function of management. Repeated analyses during the last few years have definitely shown that when the grass is kept young and leafy by close grazing at regular intervals it contains a very high percentage of protein which by rational management can be expended over a greater portion of the year, and the presence or absence of clovers in the pasture does not materially alter its feeding value.

It will also be noted from the analyses that the amount of fibre in young leafy grass when such is grazed is much less than in grass which has reached maturity. In other words, lack of good management considerably reduces the feeding value of the standing grass, and at the same time permits of the grasses and other forage plants taking out of the land some of the constituents that are badly needed, without returning by feeding or fertilizers the necessary quantity of nitrogen, phosphoric acid, and potash that is required to maintain the land's fertility.

We must recognise that young leafy pasture partakes of the character of a protein concentrate of high digestibility and nutritive value. When in its pre-flowering stage of growth it is undoubtedly the feed designed for production rather than for maintainence purposes. Unfortunately, many pastures are sadly neglected inasmuch as the grasses are permitted to flower and seed, causing them to become not only fibrous and of low feeding value, but in the end to produce roughage neglected by stock, unless the animals are forced to eat the illnatured herbage through lack of better feed.

In the table giving the comparative analyses of grasses, clovers, and other forage plants, it should be explained that such analyses represent samples cut from different pasture experiments grown under natural conditions on poor soil without any heavy application of fertilizer.

To show the effect of thorough cultivation, irrigation, and a heavy dressing of fertilizers, representing conditions that would occur on land treated in the same manner as the small plots growing in the Exhibition Ground, Brisbane, it is desired to put on record that the proteins, under conditions existing at the Exhibition and with samples produced on land that had been fertilized and irrigated, show a marked increase over the proteins set out in the table representing material grown under the natural conditions of Queensland. As an example, samples on the Exhibition Ground—that is to say, on land that had been thoroughly prepared, and with applications of fertilizers equivalent to approximately 400 lb. per acre—gave in the case of the Phalaris grasses a protein content from 32 per cent. to nearly 35 per cent., and the pseudo or false perennial rye grass a protein of over 36 per cent., and with Italian rye grass nearly 33 per cent., and true perennial rye grass from 30 per cent. to 33 per cent.

It is necessary to stress these figures representing material grown under ideal conditions, and to point out that claims often made in the daily Press as to a particular grass containing a ridiculously high protein content are often based on conditions that only exist in the selected small spots that have received special treatment, and do not in any way indicate the true value of the grasses that would be produced under existing farming conditions in the majority of areas where such grasses will grow.

On reference to the top-dressing experiments carried out about ten years since, it is obvious that too great a reliance was placed on rock phosphate and super. At the time it was not quite realised that the land was not carrying clovers.

The Agricultural Chemist, reporting on some of the 1927 experiments, pointed out that owing to the very dry weather, only two cuts of grasses were possible within the year, and during the next year made further comment on experiments at Runcorn, which were carefully planned and well laid out, but the supervision and carrying out of the subsequent work left much room for improvement. In Mr. Brünnich's opinion the appointment of an officer to take charge of the whole work was necessary. In the absence of such appointment, the experiments had, unfortuantely, to be discontinued.

The conditions of drought that had existed for some time were broken on Christmas Day of 1927. This synchronised with the arrival of Mr. Blewitt of the I.C.I. At the suggestion of Mr. Blewitt, the A.C.F. and Shirley's Fertilizer Co. made available an adjacent paspalum pasture at Runcorn for further experiments, particulars of which will be found on page 82, in the late Mr. Brünnich's report for 1928. Briefly, the facts were: The paddock was of rather poor soil which had been under paspalum for eighteen years, during which period it had been more or less constantly grazed. At the time when the work was started (24th January, 1928) the grass had been closely eaten off, after the good rainfall of just over 6 inches during the previous three weeks. The ground was therefore in a good moist condition, and the land laid out in 1-acre plots, on four of which the fertilizers were broadcasted.

Plot 4 had an application of 600 lb. per acre made up as follows:—150 lb. of superphosphate, 150 lb. of ammonium sulphate, 237½ lb. of Nauru phosphate, and 61½ lb. of potassium chloride.

Plot 3.—200 lb. of superphosphate and 200 lb. of Nauru phosphate.

Plot 2.—100 lb. of ammonium sulphate, 259 lb. of Nauru phosphate, and 41 lb. of potassium chloride.

No. 1.—100 lb. of ammonium sulphate, 100 lb. superphosphate, 159 lb. of Nauru phosphate, and 41 lb. of potassium chloride.

One plot had no fertilizer applied.

Rain followed the application of the fertilizers, and the influence of the complete fertilizers applied could be noticed almost immediately, becoming more and more apparent, particularly in the heavily fertilized Plot 4, which in a short time looked more like a cultivated crop than ordinary pasture.

The question of animal preference was not overlooked; after cutting samples of the grasses for analyses the cattle were allowed to graze for six hours in the paddock and close ascertation made as to which of the plots were preferred by the cattle.

Within ten minutes of the entrance of the cattle, 13 of the 19 head were on Plots 1, 2, and 4, and in a very short time the number increased to 16. The average of the counts made from time to time during the six hours showed that 15 head had grazed on the plots 1, 2, and 4, as against 4 head on the remainder of the paddock.

This definitely gives an indication that the Nauru super. mixture was not appreciated by the animals. Further particulars were published in the 1928 report, and were also published at the Brisbane Exhibition of that year. The results as pointed out by Mr. Brünnich were clearly to the following effect:—(1) Nitrogen in the form of sulphate of ammonia gave a considerable increase in the weight of grass per acre; (2) nitrogen gave a very large increase in the food value of the grass, by the much increased amounts of protein, more particularly on the heavily manured Plot 4; (3) phosphatic fertilizers alone in the form of a Nauru phosphate-superphosphate mixture did not give any increase in the yield or food value; (4) the protein content of the grass decreased rapidly with age, and was found, at the time, when the grass was beginning to flower to be practically the same on all the plots—this experiment, therefore, conclusively proved the value of short young grass. The experiment referred to was carried out by private enterprise, which could have achieved similar phenomenal success in other districts had dairymen been in possession of a horse-mower and had efficient implements such as now can be purchased, under the name of Sunpalm Renovator. At the time, several pastoral and other companies who heard of this achievement visited Runcorn. This resulted in a series of visits from dairymen and others who had land under *Paspalum dilatatum.* It was, however, difficult to make them understand that before top dressing of pastures is begun they should be given a general clean up; in fact, this is the first essential of pasture work. In most cases it was found that those interested did not possess a mower; further, they had no intention of purchasing same. As to suitable implements for renovating, such as the Sunpalm Renovator, it appeared to be quite beyond their understanding. The matter was, therefore, left for a year or so until Mr. Webster, at Maleny, showed clearly what could be achieved by a suitable implement. Mr. Webster's experiments were started on *Paspalum dilatatum* and white clover pastures at Maleny during the latter part of 1930, and were a distinct advance on any previous experiments made, but unfortunately not copied by many. In 1931 it was obvious that under conditions such as existed at Maleny it would be possible to establish winter-growing grasses. This, of course, leads us to ploughing. At the time, few, if any, could understand the necessity for cultivation in the growing of grass.

The experiment at Maleny was started some time in October, 1930, the fertilizer used being, on Plot 1, 1 cwt. of sulphate of ammonia plus 2 cwt. of superphosphate—on this plot 10 cwt. of lime carbonate had previously been applied; (2) 1 cwt. of sulphate of ammonia and 2 cwt. of super.; (3) top dressed with 2 cwt. of superphosphate—leaving another plot, similar in size to the others, without fertilizers.

Particular attention is directed to these mixtures, which, it will be noted, consist of 1 part sulphate of ammonia mixed with 2 parts of superphosphate. This mixture is now known as No. 9 pasture fertilizer, and was first tried out on an extensive scale during the latter part of 1930.

The present idea is still to use the No. 9 pasture fertilizer; in some cases, at the rate of 2 bags per acre; and again with some land it is only necessary to use 1 bag per acre—such bag containing 173 lb.

It need hardly be stated that the application of 3 cwt. of No. 9 pasture fertilizer to the paspalum plots at Maleny gave good results. On the other hand the super. failed to bring the grass into active growth. The plot without fertilizer was even worse than the one with super. only.

A Pasture Improvement Committee was formed in April, 1931, and is now superseded by a committee formed in July, 1934. This matter should be clearly understood as the mixtures of the fertilizers used by the committee in May of 1931 differed from those that gave complete success at Maleny. It need hardly be added that present opinion reverts to the 1930 idea, which is the outcome of many experiments carried on after the success of 1928. The work with grasses and clovers has now made such progress as permits more definite statements regarding the values of such plants. During the last two years many complaints have been made both in the immediate North Coast districts, as well as in North Queensland, as to the intrusion of *Axonopus compressus* syn. *Paspalum compressum* (carpet grass) and *Digitaria didactyla* (blue couch) among *Paspalum dilatatum* and other grasses. It is known that where neglected *Paspalum dilatatum* occurs and close grazing has been practised, the intrusion of mat grasses has caused considerable trouble. In the case of *Paspalum compressum,* however, this grass could usually be controlled by cultivation and subsequent sowing of *Paspalum dilatatum.* Probably the same treatment would control blue couch. Experiments in this direction were being carried out at Lawnton. These, however, cannot be carried further as the present committee decided early in July not to carry on work in the Lawnton area.

Of the perennial rye grasses that have been experimented with, the best strain is, undoubtedly, the New Zealand certified variety. At Lawnton small plots are still standing, from seed brought from New Zealand by Mr. Davies just over two years since, and the amount of die out in these plots has a definite relation to the amount of fluorescence found in the rootlets of the samples examined.

Under the conditions that exist and the poor soil of Lawnton, that is somewhat of the same character as the Caboolture area, perennial rye grass does not give that measure of success sufficient to encourage one to recommend this grass to dairymen and farmers who are on land of medium or low fertility. On the other hand the success of both Maleny and Nerang indicates that, given suitable cultivation, the New Zealand certified perennial rye grass can be grown to advantage.

The question of palatability in rye grasses is of the greatest importance. Trials of similar strains of rye grass have been carried out in various parts of the North Coast line. Where the results have been carefully noted the conclusions are the same as those arrived at from the Lawnton experiments.

The most palatable and heaviest yielding strain of annual rye has invariably proved to be a good strain of the Italian variety. Again, we must carefully note that subsequent remarks referring to Italian rye grass refer to only the well-known leafy strain that can be purchased from overseas. This strain produces a heavy weight of quick-growing leafy material which, if kept carefully grazed, will carry on right into the early summer.

Wimmera rye grass has produced a good quantity of green feed during the cooler months of the year, but soon rushes into seed-head. This, of course, rapidly reduces its feeding value, and in many cases makes it more or less neglected by stock when the animals have access to grasses not in seed-head.

Cocksfoot.—Many strains of cocksfoot have been tried, and undoubtedly the Akaroa is the best.

Unfortunately, cocksfoot is slow to occupy the ground; consequently where sown in a considerable quantity every encouragement is given to the intrusion of worthless grasses. With the exception of some favoured spots, it is questionable if cocksfoot on strictly coastal areas would be advantageous for any dairyman to sow.

Phalaris tuberosa (perennial canary grass).—This grass has done well under adverse conditions and stands out pre-eminently as a valuable grass in Queensland. The question of palatability can be judged by close examination of any pasture in which a small quantity of *Phalaris tuberosa* has been included in the seed mixture. The plants are sought out and closely eaten down by cattle. Like other perennials, *Phalaris tuberosa* is not at its best during the first year; consequently unless land has been thoroughly prepared the pasture during the second year will probably consist of grasses of low-feeding value and weeds. The question of thorough preparation of the land cannot be too greatly stressed. *Phalaris tuberosa* undoubtedly does best on its own. The plant is leafy, of high palatability, has a good protein content, and is therefore well worth special attention by anyone who is really interested in the production of better pastures. Undoubtedly this valuable grass would be very popular if it could reproduce itself in the manner of Rhodes grass. The price of *Phalaris tuberosa* seed is much higher than that usually paid per pound for grass seeds; further, it requires a properly prepared seed-bed. To sow this valuable and costly seed on land that has not been properly prepared has proved by repeated trials to be a waste of money. At Lawnton it has been possible to select several strains of *Phalaris tuberosa.* As far as can at present be seen, such strains would undoubtedly be classified by Kew as *Phalaris tuberosa.* Several of these strains have broader leaves and are of more vigorous growth. The seed-heads consequently are somewhat larger, yet botanically appear the same. Efforts are being made to reproduce several of these strains. As would be expected with any variety of special merit the best strains are the shyest seeders.

Bromus marginatus.—This may best be described as a perennial prairie grass which has been under observation at Lawnton during the last three years, coming up each season without resowing, the seeding stems being carefully cut out.

Undoubtedly districts adapted to the production of the ordinary variety of prairie should give *Bromus marginatus* a trial. A word of warning is necessary with *Bromus marginatus* seeds, which do not differ from the ordinary prairie grass. The seed-heads also are somewhat similar; therefore it gives a glorious opportunity for the unscrupulous to sell, or as a kindness give to friends, prairie grass under the name of *Bromus marginatus,* which would be found after the first year to prove only an annual.

Among grasses that have persisted during the last few years under adverse conditions that we have experienced, undoubtedly Tall Fescue deserves a place. At Lawnton this has persisted during the last four years and has readily been eaten by stock when in its young stages. It probably is not popular on account of many samples of Fescue sold in the past containing Ergot. It is now possible to purchase Tall Fescue seed free from Ergot, and it should be remembered that the sale of any grass seeds containing Ergot renders the seller liable to proceedings within the State of Queensland.

Clovers and Allied Plants.—During the last four years many strains of clovers and allied plants have been sown at Lawnton. Owing to adverse seasons none has persisted in a manner sufficient to indicate its success under similar conditions. Even lucerne that will put up with a considerable amount of dry weather failed to maintain itself under the conditions existing at Lawnton.

One legume, *Lotus corniculatus,* has certainly put up with these adverse conditions.

In order that the matter may be better explained we will run briefly over some of the clover trials. During 1932 a series of red clovers were sown, these representing strains of the English wild red, the red broad-leaved clover of New Zealand, commonly called perennial red, Montgomery red, the late red clover from England, the seed of which is now obtainable from New Zealand, as well as some minor strains. Of these, the New Zealand certified red broad-leaved clover and Montgomery red were undoubtedly the best strains. None, however, persisted over the second year.

With the white clovers, the Italian strain of tall white, the common white Dutch, the Kentish wild white, and the New Zealand certified white, were tried. Undoubtedly the giant Italian white made the best showing during the first year among grasses, then died out. Ordinary strains of white Dutch disappear during the second year. A true strain of Kentish wild white was choked out by other herbage, its growth being very small and not in any way high enough to persist against the intrusion of native grasses. With the New Zealand certified white an occasional plant can still be found. Such plants have a smaller leaf than white Dutch, and are shy seeders well adapted for sowing on the soils under conditions suitable for the growth of white clover. Within 4 miles of Lawnton such conditions exist, the principal factor being sufficient soil moisture. Of the other legumes tried, lucerne persisted, but was gradually beaten by the intrusion of grasses. On some high ridges where lucerne and some other plants failed, *Lotus corniculatus* although making but feeble growth, during the first year was able to persist owing to its deep roots, and can yet be found in places where it has not been choked out by blue couch. *Lotus corniculatus* or birdsfoot trefoil unfortunately may, under some conditions, contain a considerable percentage of HCN, a poisonous principle that is in sorghums, therefore it is not advisable to attempt to grow *Lotus corniculatus* on its own. It does not follow that this HCN content would always be present, and the inclusion of ½ lb. to 1 lb. of seed per acre would not be likely to cause any ill effect to stock.

Stylosanthes.—Several strains of Stylosanthes under different names have been tried at Lawnton, and all of them appear to be *Stylosanthes mucronata.* None can be considered a great success in districts where other legumes could be grown. Amongst the samples of *Stylosanthes mucronata* one had a few plants of more upright growth. These plants were selected, and are now represented by a small plot showing plants that have a far more upright manner of growth. The present crop will again be carefully selected and saved for seed. Although the resulting crop will not in any way equal lucerne under good conditions, it may be possible to fix a variety that will be of value as an economic plant during the hot period of the year in districts where lucerne will not grow. All strains so far have proved to be annuals, and are summer growers.

Lespedeza.—Several strains of Lespedeza have been tried. The Sericea (perennial), although an upright grower, appears to be woody—*i.e.,* the plant unless grazed closely would be very fibrous and probably not palatable. In the Woodford district several plants undoubtedly growing wild have been found that probably represent a native variety closely allied to Sericea. The Lespedezas are summer growers with a high fibre content. Sericea, when ten weeks old, on analysis (moisture-free basis) was found to contain 15.7 per cent. crude protein and 20 per cent. crude fibre. The stipulacea variety, which is an annual, at the same age of growth, contained just over 19 per cent. of crude protein and over 21 per cent. of crude fibre. The ordinary variety, *L. striata,* contained an average, at the age of ten weeks from date of sowing, of 17 per cent. crude protein and just under 20 per cent. of fibre. It will therefore be noted that none of these plants had the high protein content of young lucerne, and all of them contained more fibre than would be found in young lucerne plants. *Lespedeza striata* was probably introduced to Queensland about fifteen or sixteen years ago, when it has been lost sight of, but this year, owing to the abundant rains just before Christmas, followed by other spells of wet, produced quite a number of plants that evidently were the outcome of seed sown many years since, and had owing to adverse seasons been overlooked by the farmers in whose land plants were growing. The specimens in question, although more or less damaged on arrival, indicated that the plants found by the respective farmers were of such a large size as to indicate several months of growth, with a very high fibre and low protein content. None of the specimens would have been of the feeding value of those cut for analysis at Lawnton.

POISONOUS PROPERTIES OF SUDAN AND OTHER SORGHUMS.—Last year's Annual Report included the results of work done in connection with HCN in Sudan and sweet sorghums; this has been enlarged upon during the year under review, and further results obtained by this Branch assisted by the Agricultural Chemist are included herein.

The following tables are self-explanatory; the first giving the comparative chemical analysis and HCN content of the various sorghum spp., followed by a table setting out the HCN content of individual samples of sweet sorghums, the previous table dealing only with composite samples.

A similar table for *Sorghum sudanense* (Sudan grass) is given which also gives a description of the seeds and an indication of the colour, as well as the place of origin, of which particular notice should be taken, as two samples were alleged to be of Victorian growth and one definitely grown in New South Wales. It is often stated that samples of *Sorghum sudanense* (Sudan grass) contain seeds of *Sorghum vulgare* (sweet sorghum). These are referred to in the small table that sets out the HCN content of such samples, which it will be noted have a higher HCN content than ordinary samples of Sudan grass. The last table deals with Johnson grass and a native sorghum, and in both instances the percentage of HCN is very high.

COMPARATIVE CHEMICAL ANALYSES AND HCN CONTENT OF SORGHUM SPP.

Sample No.	Kind of Sorghum.	Age from Date of Sowing 19 October, 1933.	Age from Date of Last Cut.	Water-free Material.					HCN Content	Average Height.	Remarks.
				Crude Protein.	Crude Fat.	Crude Fibre.	Analysis of Ash. Lime.	Analysis of Ash. Phos. Acid.			
		Days.	Days.	%	%	%	%	%			
1023	*Sorghum vulgare* (Sweet Sorghum)	40	..	20·4	2·1	24·0	·532	·441	>8·0	1 ft. 3 in.	Young, succulent, green, leafy stage.
1104	*Sorghum vulgare* (Sweet Sorghum)	..	21	15·7	1·8	28·6	·444	·430	3 to >8	2 ft.	Succulent, green, leafy.
1214	*Sorghum vulgare* (Sweet Sorghum)	..	71	..	..	..	..	..	2·5	..	Leafy, stemmy, green, succulent, seed heads forming.
1095	*Sorghum vulgare* (Sweet Sorghum)	54	..	15·8	1·2	28·9	·625	·370	varies 2 to 8	2 ft.	Succulent, green, leafy.
1145	*Sorghum vulgare* (Sweet Sorghum)	90	..	8·3	1·1	34·9	·294	·400	1·0	6 ft.	Green, leafy, stemmy, seed head appearing.
1237	*Sorghum vulgare* (Sweet Sorghum)	131	..	3·1	1·2	34·6	·241	·116	0·5	8 ft.	Stemmy, leafy, few upper leaves green, remainder dry, seed heads ripe.
1317	*Sorghum vulgare* (Sweet Sorghum)	187	..	2·9	1·0	35·3	·245	·159	..	7 to 9 ft.	Seed ripe, old growth, stemmy, few leaves green, mostly dry. Representative sample of sorghum left standing in the field.
1018	*Sorghum Sudanense* (Sudan Grass)	40	..	22·8	2·1	22·9	·678	·445	2·1	1 ft. 3 in.	Young, succulent, green, leafy stage.
1102	*Sorghum Sudanense* (Sudan Grass)	..	21	17·9	2·1	28·3	·635	·442	1·7	2 ft. 3 in.	Succulent, green, leafy.
1212	*Sorghum Sudanense* (Sudan Grass)	..	71	..	..	..	..	..	< 0·25	..	Stemmy, leafy, both green and dry leaves present. Seed heads forming.
1093	*Sorghum Sudanense* (Sudan Grass)	54	..	14·7	1·1	31·1	·574	·382	1·7	3 ft.	Succulent, green, leafy, stemmy, seed heads appearing.
1143	*Sorghum Sudanense* (Sudan Grass)	90	..	7·6	1·4	31·0	·294	·389	< 0·5	5 ft.	Seed heads 7 ft. high, green, stemmy, leafy.
1235	*Sorghum Sudanense* (Sudan Grass)	131	..	5·7	0·6	34·0	·346	·288	Nil	5 ft.	Seed ripe, stemmy, a few green and dry leaves.
1314	*Sorghum Sudanense* (Sudan Grass)	187	..	5·1	0·7	40·2	·363	·254	..	5 ft.	Seed heads 6 ft., seed ripe, old growth, stemmy, few green leaves, mostly dry. Representative sample of Sudan left standing in the field.
..	*Sorghum halepense* (Johnson Grass)	40	..	..	..	..	..	..	>+ 8·0	..	Leafy, succulent.
..	*Sorghum halepense* (Johnson Grass)	..	21	..	..	..	..	..	>++8·0	..	Young, leafy, succulent.
1216	*Sorghum halepense* (Johnson Grass)	..	71	..	..	..	..	..	1·0	..	Stemmy, leafy, both green and dry leaves present, seed heads forming.
1094	*Sorghum halepense* (Johnson Grass)	54	..	18·3	..	28·0	·649	·520	>+ 8·0	1 ft. to 2 ft. 6 in.	Leafy, succulent, a few seed heads appearing.
1144	*Sorghum halepense* (Johnson Grass)	90	..	8·1	1·1	33·9	·437	·292	4·5	4 ft. 6 in.	Green, stemmy, leafy, in seed head, not ripe, later than Sudan.
1236	*Sorghum halepense* (Johnson Grass)	131	..	6·2	1·5	34·4	·324	·220	0·75	5 ft.	Seed ripe, stemmy, leafy, all leaves green.
1316	*Sorghum halepense* (Johnson Grass)	187	..	4·4	0·6	37·9	·436	·188	..	4 ft. 6 in.	Seed heads 5 ft. 6 in., stemmy, leafy, few upper leaves green, remainder dry, seed ripe. Representative sample of Johnson Grass left standing in the field.
1315	*Sorghum verticilliflorum*	187	..	5·2	0·8	35·9	·439	·285	> 8·0	4 ft. 6 in.	Seed heads 6 ft., stemmy, leafy, all leaf green except little at base, seed ripe.

SORGHUM VULGARE (Sweet Sorghum).

Sown 19 Oct., 1933.	Dates cut .. .. Age from date of sowing .. .. Age from date of last cut		28 Nov. 40 days ..	12 Dec. 54 days ..	18 Dec. .. 21 days	17 Jan. 90 days ..	27 Feb. 131 days ..	27 Feb. .. 71 days
Plot No.	Name under which Seed was Sold.	Number of Days taken to reach Seed-head Stage.	HCN	HCN	HCN	HCN	HCN	HCN
933	Saccaline	97	> 8	7	5	1	0·5*	2·5*
934	Saccaline	90	> 8	7	5	1		
935	Saccaline	90	> 8	4	5	0·7		
936	Saccaline	90	> 8	7	5	1		
937	Saccaline	110	> 8	3	5	1		
938	Saccaline	90	> 8	7	5	1·2		
939	Early Ambercane	80	> 8	8	5	0·7		
940	Planter's Friend	97	> 8	8	5	1·5		
941	Imphee	97	> 8	4	5	..		
942	Imphee	97	> 8	8	7	..		
943	Red Imphee	97	> 8	6	> 8	..		
944	Red Imphee	90	> 8	4	5	..		
945	Oxley	80	> 8	6	8	..		
946	White African	97	> 8	2	3	..		
947	Early Orange	90	> 8	4	5	..		
948	Cowper No. 61	90	> 8	3	5	..		

* HCN Findings on Composite Samples. < = less than, > = greater than.

SORGHUM SUDANENSE (Sudan Grass).

Sown 19 Oct., 1933.	Dates cut .. .. .. Age from date of sowing .. Age from date of last cut ..	.. ..	28 Nov. 40 days ..	12 Dec. 54 days ..	18 Dec. .. 21 days	17 Jan. 90 days ..	27 Feb. 131 days ..	27 Feb. .. 71 days
Plot No.	Colour of Seeds Sown.	Place of Origin.	HCN	HCN	HCN	HCN	HCN	HCN
915	Canary-like, a trace shows a red tinge	Queensland ..	1·5	1·0	1·5	< 0·5	*Nil	< *0·2
916	Dark-yellow, some tinged with brown, others tinged with red, while some are all black	Queensland ..	2·0	1·5	2·0	< 0·5		
917	Dark-yellow, some tinged with brown, others tinged with red, while some are all black	Queensland ..	1·7	2·5	1·5	< 0·5		
918	Canary-like, a few red to brown tinged	Queensland ..	1·5	1·5	1·0	< 0·5		
919	Canary-like, a few red to brown tinged	Queensland	2·5	1·5	1·0	< 0·5		
920	Dark-yellow, some tinged red, some all brown, a few all black	Queensland ..	3·0	2·0	2·0	< 0·5		
921	Canary-like, a few red to brown tinged	Queensland ..	1·5	2·0	1·0	< 0·5		
922	Dark-yellow, some red tinged, a few brown tinged, some black	Victoria ..	2·0	1·7	2·0	Nil		
923	Canary-like, a few red tinged, some black	N. S. Wales ..	3·5	1·5	1·5	Nil		
924	Dark-yellow, some red tinged, a few brown tinged, some black	Victoria ..	2·0	1·5	1·7	Nil		

Seed head stage was reached in 90 days.

* HCN Findings on Composite Samples.

< = less than, > = greater than.

A SAMPLE OF *SORGHUM SUDANENSE* SEED CONTAINING *SORGHUM VULGARE*-LIKE SEEDS.

Sown 19 Oct., 1933.	Dates cut .. .. .. Age from date of sowing .. Age from date of last cut ..	28 Nov. 40 days ..	12 Dec. 54 days ..	18 Dec. .. 21 days	17 Jan. 90 days ..	27 Feb. 131 days ..	Remarks on fully grown Plant.
Plot No.	Appearance of Seed Sown.	HCN	HCN	HCN	HCN	HCN	
925	Both canary-seed like and dark-yellow seeds, some of the latter tinged with red, some all black	3·0	1·0	2·5	Nil	< ·25	More leafy, and ripened seed a little later than other Sudans, but not so late as the two following plots (928 and 929).
	Seeds hand picked from same sample as plot 925, having the following characteristics :—						
928	Dark-yellow Sudan seed, *Sorghum vulgare* shaped	4·5	2·0	2·0	Nil	< ·25	Ripened seed later than Sudan
929	Black coloured Sudan seed, *Sorghum vulgare* shaped	4·5	2·0	2·0	Nil	< ·25	

All on this table produced Sudan grass (*Sorghum sudanense*)-like plants, as distinct from *Sorghum vulgare* which produced right from the first maize-like plants.

< = less than, > = greater than.

SORGHUM HALEPENSE (JOHNSON GRASS) AND *SORGHUM VERTICILLIFLORUM* (a Native Sorghum).

Sown or Planted 19 Oct., 1933.	Dates cut .. .. Age from date of sowing Age from date of last cut	28 Nov. 40 days ..	12 Dec. 54 days ..	18 Dec. .. 21 days	17 Jan. 90 days ..	27 Feb. 131 days ..	27 Feb. .. 71 days.	Remarks.
Plot No.		HCN	HCN	HCN	HCN	HCN	HCN	
930	Johnson grass from seed	>+++8	>+ 8	>+++8	..	*0·75	*1·0	
931	Johnson grass from seed	>+ 8	> 8	>++ 8	5			
932	Johnson grass from roots	>+ 8	>++ 8	>++ 8	3·75			
926	*Sorghum verticilliflorum* from seed	>+ 8	8	>+ 8	..	> 8	..	Material tested on receipt.
						> 8	..	Material tested 24 hours later.
						Nil	..	Material tested 7 days later.

< = less than, > = greater than.

* HCN Findings on Composite Sample.

Johnson grass forms seed heads later than Sudan, with narrower leaves, tillers profusely and has the strong below ground creeping root stocks, nearly impossible to eradicate from cultivated land. Young green shoots are continually appearing even when the older parts of the plant have shed all their seed.

Sorghum verticilliflorum, a wild kind of sorghum found in Queensland ; forms seed heads later than Sudan with much less leaf, has poor tillering ability and fibrous roots.

The figures used in denoting quantities of HCN found are index figures only, and are merely comparative, ranging from 0 to 8.

It was found that the HCN content of Johnson grass and *Sorghum verticilliflorum* exceeded in some cases the figure 8; this is indicated by a plus (+) sign with additional signs where necessary.

HCN is the chemical formula which represents hydrogen cyanide, hydrocyanic acid, or prussic acid.

Where apparent contradictions occur, these may be explained by the tendency of these plants to throw out fresh growth from their nodes, the young new growth in which HCN occurs being mixed with the old HCN—free material.

The following short table sets out the rainfall during the period the plants under consideration were growing:—

1933.	1st Week.	2nd Week	3rd Week.	4th Week.	Total.
October ..	2·26	0·72	0·08	·22	3·28
November ..	1·86	3·91	1·74	0·49	8·00
December ..	2·34	2·52	1·05	5·05	10·96
January ..	2·87	..	0·40	0·23	3·50
February ..	6·50	..	6·35	0·10	12·95

FRED F. COLEMAN, Officer in Charge.

REPORT OF THE CHIEF INSPECTOR OF STOCK.

The following preliminary numbers have been received from the Registrar-General, showing the number of live stock in Queensland on the 1st January, 1934:—

Year.	Horses.	Cattle.	Sheep.
Actual—1st January, 1933	452,486	5,535,065	21,312,865
Preliminary—1st January, 1934	434,733	5,779,358	19,255,585

Early winter rains were experienced over approximately three-quarters of the State. The seasons have been from average to good, but our western country requires a series of good seasons to restore the natural grasses to their normal condition. The condition of flocks and herds is better than at a similar period last year. In most localities grass, even if dry, is plentiful, and with the strong condition of the stock they should winter well.

The market for horses continues to improve, particularly for growers from 12 to 18 months old, prices at auction for mares or geldings having realised in Toowoomba for—heavy unbroken, 3 years old, £28 to £30; heavy broken in, 4 to 5 years old, £35 to £40.

The provisions of the Diseases in Stock Acts dealing with abandoned or "brumby" horses have been enforced in several districts, and have been the means of destroying a large number of nondescripts and "brumby" stallions.

Stallion Boards are also operating in the principal horse districts. The Government has also granted a concession of 20 per cent. rebate on freight for the conveyance by rail of stallions used solely for breeding purposes. These conditions, together with a greater demand and better prices, should naturally assist in improving the horse-breeding industry.

In the course of the year the transborder crossings were: 6,129 horses to New South Wales, and 2,034 to South Australia.

Experimental shipments of chilled meat to England have been very satisfactory, and the prices realised in London have averaged approximately £4 per carcase more than for frozen meat. If a regular supply of suitable quality and quantity of meat can be maintained it should result in a permanent and commercial success to cattle-growers in Australia, and more particularly to those in this State. Reports indicate that several meat export works are already carrying out improvements to plant to provide the scientific facilities necessary for carrying on the chilled meat trade. The building up of the chilled meat trade will naturally increase the demand for store cattle. We have considerable areas of suitable land available for fattening purposes, apart from areas now used for breeding, and farmers and dairymen on the coast will have an opportunity of using fodder crops for fattening and topping up of suitable steers.

Another enterprise that should assist a number of cattle owners in the Gulf district is the establishment of a meat works by a private company, assisted by the Government. The works are being constructed at Karumba, near the mouth of the Norman River, with, it is understood, a killing capacity of 150 head of cattle per day. This will, in many cases, avoid long droving distances and wasting of condition that takes place en route.

It is gratifying to report that the buffalo fly in the north-west portion of the State has not spread to any extent during the last two years. A survey made recently indicates that the fly is confined to properties as far south as Gregory Downs, and in an easterly direction to Beamesbrook Creek and Barkly River. Every precaution is being taken to prevent the spread of the pest by restricting the movement and the treatment of stock from fly-infested areas, spraying of stock at Kajabbi, and the cleansing and disinfection of trucks at Stewart's Creek and other centres.

"THE VETERINARY MEDICINES ACT OF 1933."

Regulations under this Act were gazetted on the 8th February, 1934. Up to the 30th June, 1934, nearly 300 veterinary medicines were submitted for examination by the Board. Of these approximately 200 were accepted for registration, many after considerable alteration to the labels and modification of claims, &c.

The Quarantine Regulations, dealing with the term of quarantine on certain imported animals, were varied in the course of the year. Periods of detention have been reduced in some cases where the vessel upon which the animals were carried did not carry any animals between intermediate ports on the current voyage. The following periods apply in such cases:—

	Days.
Horses, asses, and mules from Great Britain, Ireland, or Fiji shall not be isolated in quarantine unless they are suspected to be suffering from any disease	
Horses, asses, and mules from Canada, United States of America, or France ..	7
Asses from Spain or Portugal.	7
Cattle from Great Britain, Ireland, Canada, or the United States of America, together with a further period under quarantine surveillance of not less than	30
Swine from Great Britain, Ireland, or Canada	7
Sheep and goats from Great Britain, Ireland, Canada, or the United States of America	21
Dogs from Great Britain or Ireland ..	60
Rabbits from Great Britain, Ireland, or New Zealand	14

PROSECUTIONS.

Act.	Number of Prosecutions.	Number of Convictions.
Diseases in Stock Acts	55	54
Slaughtering Act	31	29
Brands Act	8	8

VISCERA EXAMINED DURING THE YEAR.

One hundred and ninety-nine samples of viscera and toxological specimens were examined by the Agricultural Chemist. Of these thirty were found to contain arsenic, 3 lead, and 5 gave reaction for alkaloids.

HORSES EXPORTED OVERSEAS.

Horses exported overseas numbered 1,306.

TUBERCULIN TEST.

Eight hundred and thirty-two animals were submitted to the test, 73 animals giving a positive reaction. In addition to this number, others were tested by officers of the Animal Health Station, Yeerongpilly.

DIPPING FLUIDS.

The number of dipping fluids analysed during the year was 407.

PLEURO PNEUMONIA CONTAGIOSA.

The total number of outbreaks reported was 37, as compared with 23 for the previous year.

District.	1933.						1934.						Total.
	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	
Brisbane	..	..	..	1	..	..	..	..	..	..	1	..	1
Bowen	1	..	..	..	..	..	..	..	..	1	..	..	3
Clermont	..	..	1	..	..	2	2	..	1	..	..	1	7
Cloncurry	..	..	1	..	..	..	1	..	..	..	..	..	2
Hughenden	..	..	..	..	..	..	1	..	..	..	..	..	1
Longreach	2	..	..	..	..	..	..	..	1	..	..	..	3
Maryborough	..	..	..	..	..	..	..	..	..	1	..	..	1
Rockhampton	..	2	..	1	..	1	..	..	..	..	..	..	4
Roma	..	..	..	..	..	..	..	..	..	..	..	..	3
South Burnett	..	..	..	..	..	..	..	3	..	..	..	..	4
Toowoomba	..	..	..	..	..	..	..	..	..	2	..	2	..
Townsville	..	..	3	..	1	1	..	1	1	1	..	..	8
Warwick	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	3	2	5	2	1	4	4	4	3	5	1	3	37

TICK CLEANSING AREAS.

Cleansing work has been satisfactory in the various areas notwithstanding frequent periods of wet weather, which were particularly favourable to tick life, but at the same time unfavourable for carrying on general field work.

It is reported from the South Burnett cleansing area that a serious handicap to tick eradication is the custom of some local authorities of registering stock to graze on reserves intended for watering and camping purposes, and not for agistment.

In each area, certain reinfestations took place owing to the wet weather experienced at certain periods of the year, and to straying stock which are always a menace in connection with cleansing work.

Reports show that these reinfestations have been thoroughly dealt with, and it is anticipated that after next spring the ticks will be eradicated from the properties.

—	Holdings Inspected.	Total Stock Inspected.	Holdings Infested.	Stock Treated.
Helidon Cleansing Area	2,380	76,221	397	31,321
Crow's Nest Cleansing Area	1,243	80,848	265	36,452
South Burnett Cleansing Area	1,996	112,925	133	74,547

QUARANTINE ACT.

During the year the following hides and skins were imported and treated according to the requirements of the Quarantine Regulations:—

From Italy ..	465 ox hides
India	12,291 goat skins
Rabaul ..	27 opossum skins
New Zealand ..	3,000 calf skins
United Kingdom	1,492 Russian hare skins
United Kingdom	725 kangaroo and wallaby skins

Live Stock Imported.—Two bulls, 2 pigs, 5 dogs, 20 monkeys, 9 squirrels, 6 queen bees, 153 canaries, 7 chickens, 52 mandarin ducks, 3 minah birds, 2 peacocks, 21 pheasants, 2 pigeons, 36 quail, 8,319 finches and other small birds, 36 turtles, 1,201 goldfish and other small fish.

Imported Articles Disinfected in Accordance with the Quarantine Regulations.—Twenty-nine used riding saddles, 31 pair stirrup leathers, 2 bridles, 30 girths, 1 nosebag, 1 head collar, 1 chamois leather, 1 ball saddle felt, 15 bird cages, 9 animal cages, 1 pig crate, 3 dog kennels, 2 dog basins, 1 pair antlers, 1 pair bullock horns, 1 tiger head, 2 shields, 4 shark fins. Skins: Two leopard, 1 king tiger, 2 jungle cats, 2 zebras, 1 wallaby, 3 lizards. Wool: Nineteen bales, 14 samples. Hams, 293; bacon pieces, 565; canned meats, 20 cases; sheep bungs, 28,350 lb. (approximate); hog casings, 38,550 lb. (approximate).

TABLE SHOWING STOCK MOVEMENTS IN THE SEVERAL STOCK DISTRICTS FOR THE YEAR ENDED 30TH JUNE, 1934.

District.	Entered District.			Removed from District.			Movements in District.			Stock Dipped.		Stock Sprayed.	
	Horses.	Cattle.	Sheep.	Horses.	Cattle.	Sheep.	Horses.	Cattle.	Sheep.	Horses.	Cattle.	Horses.	Cattle.
Barcaldine ..	1,290	6,477	104,019	7,765	25,739	770,031	7,111	12,061	875,089	38	3,536	224	303
Bowen ..	1,571	6,371	17,647	2,314	25,259	163	5,641	41,992	431	6	8	..	31
Brisbane ..	4,278	109,070	318,620	4,314	59,319	16,513	12,182	317,277	85,011	381	3,242	1,160	289
Cairns ..	1,006	14,104	19,278	5,817	30,512	123	5,822	28,928	265	1,262	37,797	731	..
Charleville ..	8,165	130,236	400,501	18,606	181,896	1,196,486	13,417	64,847	1,381,377	..	..	..	..
Clermont ..	319	17,659	119,659	2,211	50,740	93,320	3,941	31,706	139,969	42	5,771	..	..
Cloncurry ..	1,782	44,284	38,093	3,155	62,953	94,168	5,273	45,348	173,984	..	60,861	..	9,175
Coolangatta	335	2,726	1,459	339	1,161	952	27	1,626	100	230	717	30	..
Crow's Nest..	267	5,529	1,451	472	13,409	1,765	448	15,951	21	128	25,360	..	..
Emerald ..	789	6,736	106,160	4,482	50,996	144,742	5,902	47,490	193,244	245	24,792	6,260	14,271
Gladstone ..	1,354	20,015	3,197	1,103	6,714	..	182	20,643	..	455	27	200	719
Helidon ..	1,319	5,573	4,002	2,031	23,317	100	1,121	35,061	75	1,641	31,442	351	2,735
Hughenden ..	3,305	11,169	249,749	7,391	35,192	699,319	8,861	18,929	966,164	36	3,484	281	..
Longreach ..	2,598	23,248	243,573	5,681	12,819	592,476	9,276	8,053	1,323,784	..	..	2,819	828
Maryborough	1,056	10,641	44,491	1,628	54,661	366	2,650	83,640	1,272	..	14,675	9	14
Normanton ..	811	1,944	..	5,331	70,470	..	5,277	23,394	7,000	85	4,574	775	35
Rockhampton	492	36,063	96,290	1,606	28,462	65,222	3,691	130,038	25,503	..	20	5	38
Roma ..	830	7,997	75,659	2,282	74,270	100,965	3,090	50,419	353,351	150	25,036	279	2
South Burnett	1,669	20,357	4,479	4,383	88,621	158	8,982	193,698	130	551	80,988	523	1,380
Toowoomba	8,417	138,760	213,868	13,644	204,995	348,040	31,663	712,580	1,522,891	833	70,799	1,243	743
Townsville ..	4,818	58,054	43,036	7,878	55,260	810	10,114	75,924	420	..	..	14	..
Warwick ..	1,991	17,054	27,019	1,785	20,889	83,238	2,753	79,932	85,606	13	22,176	154	9
Winton ..	7,607	98,077	196,119	8,643	79,223	560,363	4,012	14,378	682,074	..	1,577	..	3,352

STOCK SOLD AT CANNON HILL YARDS FOR THE YEAR ENDED 30TH JUNE, 1934.

Sheep, 470,072; lambs, 49,736; cattle, 126,509; calves, 26,495; pigs, 37,776.

Total stock sold year ended 30th June, 1934	710,588
Total stock sold year ended 30th June, 1933	902,864
Decrease in sale all stock for year ended 30th June, 1934	192,276

Cattle—
Average value per cental bullocks and steers, 19s. 10d. = per head £5 17s. 8d.
Average value per cental cows and heifers, 17s. 10d. = per head £4 1s. 1d.

Sheep—
Average value per lb., wethers 3·44d. (per head not stated).
Average value per lb., ewes 2·94d. (per head not stated).

Lambs—
Average value per lb., 5·74d. = per head 12s.

Pigs—
Average value per lb., porkers and baconers 5d. = per head £2 1s. 8d.

Calves—
Average value per lb., suckers, 2·2d. = per head 7s. 6d.
Vealers, 60 lbs. to 80 lbs., 12s. to 15s. per head.

"THE SLAUGHTERING ACT OF 1898."

The Senior Slaughtering Inspector reports that he made supervising visits to the following centres, viz.:—Hatton Vale, Forest Hill, Rosewood, Toowoomba, Haden, Crow's Nest, Greenmount, Nobby, Clifton, Cambooya, Warwick, Stanthorpe, Woodford, Mount Mee, Redcliffe, Bribie, Greenbank, Beenleigh, Southport, Linville, Toogoolawah, Boonah, Caloundra, Cooroy, Kin Kin, Gympie, Maryborough, Gayndah, Mulgeldie, Mundubbera, Monto, Gladstone, Calliope, Rockhampton, and many other towns on the branch and main lines.

Although the majority of slaughter-houses and shops are being maintained in a sanitary and hygienic condition, there are some in country districts that do not yet measure up to the required standards. This is clearly shown by the large number of cleansing and other orders issued yearly. Generally, the butchering trade has shown marked activity; this is manifested by the number of newly-erected shops and slaughter-houses established at various centres during the present year. Some of the shops were very costly in construction, having been built in concrete and tiled and fitted with the latest labour-saving devices for hygienic handling of meat.

Illegal slaughtering is still being resorted to by stock owners to evade the regulations. Several breaches have been investigated, but few prosecutions instituted owing to the difficulty experienced in securing sufficient evidence to convict.

Reports from Departmental officers show that the slaughter-house piggeries are being maintained by their owners to the requirements of the regulations.

METROPOLITAN SHOPS.

Abattoir Area.

During the year under review the standard of the shops which had been raised considerably since the passing of the Meat Industry Act has been maintained. Illegal slaughter of animals, which was very prevalent before this legislation was enacted, has now been practically stamped out, but constant vigilance is necessary to keep this practice in check. During the period regular visits have been made to all the shops within the area. The number of visits made show a decline over those of the previous year; this is accounted for by the fact that much patrol work has been necessary in connection with the carriage and delivery of meat under the "cutting card" system, besides the investigation of constant complaints.

The number of inspections made for the year under review is 9,819.

The number of shops and vehicles registered by the Board to the 30th June, 1934, is in excess of those over the 1933 registrations, viz.:—

—	1932-33.	1933-34.
Shops	272	291
Vehicles, motor, and others ..	367	402
Cutting carts	63	95

Forty-seven new butcher shops have been erected in different towns and country centres, some of which have been built in concrete and tiled; apart from new shops, alterations and conversions have been made to other premises to meet the requirements of the regulations. At present several new premises are in course of construction. Thirty-three new slaughter-houses have been erected at various places, and some others are not yet completed.

BACON FACTORIES.

Number Slaughtered.	1932-33.	1933-34.
Pigs	237,956	250,688

Condemnations from bacon factories are as follows:—

Tuberculosis.	1932-33.	1933-34.
Carcasses	2,968	2,720
Heads	13,635	14,702

In addition, the following cattle were slaughtered at the several bacon factories:—Bullocks, 3,575; cows, 7,198; calves, 1,609; sheep, 16.

CATTLE SLAUGHTERED AND CONDEMNED AT THE BRISBANE ABATTOIR.

For the period under review, it will be noticed that there has been an increase in the number of cattle slaughtered to the extent of 21,831 over that of the corresponding period last year, and a decrease in the number of sheep and lambs slaughtered of 100,272.

Number slaughtered.—Bullocks, 47,406; cows, 46,313; calves, 48,012; sheep, 441,792; swine, 35,364.

Condemnations from the above are as follow:—(These figures do not include stock slaughtered for export purposes):—

Cause.	Bullocks.	Cows.	Calves.	Sheep & Lambs.	Swine.
Tuberculosis	622	1,384	23	..	747
Emaciation	98	974	913	1,412	103
Abscesses	28	22	74	475	16
Fever	9	24	6	354	2
Gangrene	81	111	25	..	12
Bruising	55	84	3	..	1
Pneumonia	1	..	5	..	..
Jaundice	..	2	12	24	1
Redwater	20	11	..	..	..
Navel Ill	..	..	15	..	..
Actinomycosis	1	1	..	..	..
Advanced pregnancy	..	1	..	2	..
Septic pneumonia	..	..	5	..	..
Immaturity	..	..	22	..	..
Peritonitis	..	..	..	..	1
Septicæmia	..	2	2	..	..
Cancerous Growth	..	1	..	..	..

The following table shows stock slaughtered and condemned in the course of the period under review, and is compiled from returns furnished by permanent officers of the Department performing slaughtering duties at the following centres:—Ayr, Barcaldine, Boonah, Bundaberg, Beaudesert, Bowen, Brandon, Clermont, Coolangatta, Crow's Nest, Cloncurry, Charters Towers, Cairns, Charleville, Dalby, Gympie, Gladstone, Gayndah, Goondiwindi, Helidon, Hughenden, Home Hill, Innisfail, Ingham, Ipswich, Julia Creek, Kingaroy, Longreach, Maryborough, Miles, Mackay, Mareeba, Normanton, Pittsworth, Rockhampton, Roma, Toowoomba, Townsville, Warwick, Wondai, Wandoan, and Winton.

The return of swine slaughtered is exclusive of those treated at bacon factories, a list of which is shown separately.

Description of Stock.	Number Slaughtered.	Carcasses and Portions Condemned.	Disease.	Percentage.
Bullocks	50,130	51 carcasses	Tuberculosis	..
		27 forequarters	Tuberculosis	..
		3 hindquarters	Tuberculosis	..
		18 heads	Tuberculosis	..
		4 carcasses	Bruised	..
		11 forequarters	Bruised	..
		3 carcasses	Emaciation	..
		3 carcasses	Redwater	..
		59 heads	Actinomycosis	..
		1 carcass	Lantana poisoning	..
		1 carcass	Peritonitis	..
Cows	65,494	216 carcasses	Tuberculosis	..
		68 forequarters	Tuberculosis	..
		10 hindquarters	Tuberculosis	..
		12 heads	Tuberculosis	..
		2 carcasses	Bruised	..
		10 forequarters	Bruised	..
		17 carcasses	Emaciation	..
		11 heads	Actinomycosis	..
		2 carcasses	Advanced pregnancy	..
Calves	10,035	51 carcasses	Underweight	..
Sheep	303,076	27 carcasses	Emaciation	..
		7 carcasses	Bruised	..
		1 carcass	Pyrexia	..
Swine	35,004	168 carcasses	Tuberculosis	..
		1,052 heads	Tuberculosis	..
		3 carcasses	Abscesses	..
		1 head	Abscess	..
		3 carcasses	Emaciation	..
		1 carcass	Jaundice	..

The return of stock slaughtered under the supervision of Police Acting Inspectors is as follows:—

Bullocks	38,017
Cows	46,240
Calves	2,907
Sheep	119,520
Swine	17,232

The reports of the Instructor in Sheep and Wool and the Deputy Registrar of Brands are appended.

ARTHUR H. CORY, M.R.C.V.S.,
Chief Inspector of Stock.

APPENDIX A.

REPORT OF THE SENIOR INSTRUCTOR IN SHEEP AND WOOL.

During the early months of the year under review conditions were favourable throughout the greater portion of the sheep areas, as well as on the Darling Downs. Summer rains were better than are usually experienced, and this, backed up by mild conditions, was favourable to the pastoral industry generally, and should result in a steady natural increase practically all over the State, thus more than making up for the losses sustained in certain districts during and following the early winter rains last year.

More time has been devoted by officers to the very necessary work of selection and culling ewe flocks. To this activity has been added a campaign for the introduction of better rams. It is thought that, in the interests of the individual grower and the State as a whole too much importance cannot be attached to this matter.

Numerous visits have been made to properties in regard to sheep matters and pastures generally, and a greater interest is being manifested in the health of the sheep as regards changing pastures and the use of suitable licks. Protecting sheep from parasites by prevention or control in the early stages of attack has been advocated for some years, and growers are becoming more convinced of the success of this system of treatment. Treatment for Lung worms has become more general, and it was found necessary in many places to save the lives of the sheep. Treatment by injection is now recommended with a greater amount of confidence.

Practical demonstrations have been carried out in connection with sheep and wool in keeping with growers' requirements. The usual amount of trouble has been met with in the control of stomach worms in sheep, and it is with confidence that we are able to say that this pest may be controlled if Departmental instructions are followed. It is usually when they are associated with other intestinal worms that difficulty is experienced, under which circumstances the most successful drench has proved to be bluestone added to the arsenic-Epsom salts formulæ.

External parasites and their incidence have been about at par with other years, except that lice have been reported in certain places in the far West. Compulsory dipping has been suggested from some quarters, and it is felt that this is a matter for serious consideration. With the advent of a good season the ravages of the blowfly have been more severe than for the last few years. This branch has prescribed and put up a lamb-marking and blowfly specific, with due regard to economy, durability, and clean scouring properties. It has been favourably commented upon both from the point of view of low cost and efficiency. This formula was published in the June issue (1934) of the "Queensland Agricultural Journal," page 591.

Fat Lambs.—The scheme inaugurated by the Minister has given this branch of the industry a much needed impetus.

The interest taken in the different English types of rams purchased and distributed among the farmers is widespread, and the detailed information relative to breeds and crosses likely to be secured should be of great value in the future. Farmers who received rams were those with a certain amount of cultivation, and who were already running sheep.

Wool.—It is a pleasure to record the improvement in the average prices received for wool sold during the year. Withdrawals at the May sales were heavy, however, and buying became so restricted and erratic that those in charge of our marketing fixtures thought it wise, in the best interests of the industry, to postpone the June double sales in order to sustain prices. The time allowed before these sales will be held may be sufficient to allow for more normal outside conditions to be restored, although on the present outlook 1933 values may not be reached.

The following are the results of the seven sales that were held during the year for greasy wool:—

Sale.	Per bale.			Per lb.
	£	s.	d.	d.
1933.				
11th-14th September	20	2	5	15·00
16th-19th October	19	9	2	14·56
23rd-26th October	20	0	9	15·22
27th-30th November	22	5	5	16·90
1934.				
29thJanuary-1st February	24	13	3	18·49
12th-15th March	20	0	7	14·78
7th-10th May	18	11	4	13·55
Summary	20	15	2	15·51

During the selling season 359,732 bales were catalogued and 353,036 were sold, realising £7,453,649. The carry-over for the Commonwealth at the end of June was 213,572 bales, Queensland's quota being 102,097 bales. It will be seen that Queensland holds practically half the total carry-over, this being due to the postponement of the double June sales.

At the present time the general tone of the wool situation does not indicate a serious slump in prices.

Instruction in the commercial get-up of the wool clip has been given in numerous sheds, and the improvement shown by those growers who have formerly had instruction is marked.

Farmers' Wool Scheme.—The quantity of wool handled under this scheme was slightly less than that reported last year. The types, too, were not as good as usual, a fair proportion of the wool coming from districts not recommended for wool-growing. The decrease in the quantity of wool referred to may probably be accounted for by the poor prices ruling for wool during the three previous seasons. Farmers, finding their flocks unprofitable, disposed of them to butchers. The prices received for the DA in diamond reclassified wools have been consistently good, while the agents—the Queensland Primary Producers' Co-operative Association—have given their assurance that buyers look upon the DA in diamond brand with confidence.

During the year the conditions under which the wool was received for classification have been altered so that we can now receive butts, bags, crossbred, and wool from British breeds from any owner.

As a consequence, it is confidently anticipated that, in the future, the scheme will expand and receive that measure of support that it deserves.

During the season we sold 56,203 lb. of wool, for which we secured an average of 15·09d. per lb. Our allocation for the two sales that were to be held in June is still in store, and will be submitted at the two sales that are to be held in August.

Correspondence in regard to sheep and wool matters is constantly increasing, and forms quite an important section of the branch. We are in constant touch with brokers in matters pertaining to the industry.

Radio lecturettes of interest to sheep and wool men are given at intervals throughout the year by officers of the branch.

The usual exhibit of wool at the Royal National Show was again staged at Bowen Hills.

The estimated number of sheep—19,255,585—at the beginning of the year showed a decrease when compared with the 21,312,865 recorded for the 1st January, 1933, but favourable seasonal conditions would be responsible for an increase sufficient to make up the deficiency.

JAS. CAREW,
Senior Instructor in Sheep and Wool.

APPENDIX B.

REPORT OF THE DEPUTY REGISTRAR OF BRANDS.

DETAILS OF REGISTRATIONS, TRANSFERS, ETC., YEAR 1933-1934.

—	Number.	Fees Received.			Number since Inception of Legislation.
		£	s.	d.	
Three-piece brands registered	668	668	0	0	84,786
Cancelled brands re-allotted	15	45	0	0	6,920
Symbol brands registered	11	82	10	0	1,549
Cattle earmarks registered	288	288	0	0	26,839
Brands transferred ..	1,620	810	0	0	47,494
Sheep brands and earmarks registered ..	183	96	10	0	11,518
Sheep brands and earmarks transferred ..	238	59	10	0	5,308
Distinctive brands registered	18	No fee			..
Alteration of address of brands	249	..			..
Brands cancelled ..	21	..			..
Earmarks cancelled ..	119	..			..
Total	..	2,049	10	0	

It is satisfactory to note the general increase in the registrations and transfers during the year, the fees received being £377 12s. 6d. in excess of the figures for the previous twelve months. Owing to the financial stringency, the Brands Directory was not issued for 1930 and 1931, but the Directory, complete to the end of December, 1933, is now in the hands of the printer, and will be available shortly. Owing to the revision being very heavy, covering four years' work, the Directory will be published somewhat later in the year than usual.

The defacing of brands and earmarks is a matter which presents difficulty in preventing, and it is considered that if provision were made in the Brands Acts for any animal bearing a defaced brand or mutilated earmark, when it is apparent that the mutilation was carried out with an ulterior motive, to automatically become the property of the Crown, it would undoubtedly have the effect of putting a stop to a lot of the deliberate defacing of brands and marks.

There were eight prosecutions in the course of the year for breaches of the Acts, and convictions were obtained in each case. In addition, other offenders were warned in connection with minor offences.

H. S. ILIFF,
Deputy Registrar of Brands.

REPORT OF THE DIRECTOR, ANIMAL HEALTH STATION.

I have the honour to report that during the year 1933-1934 the work at this Station has continued to progress satisfactorily, and a considerable expansion is shown in all branches of activities undertaken. The following, in brief, gives an indication of the range of the work undertaken and carried through to finality:—

Mammitis vaccine despatched	20,364
Blood for inoculation despatched ..	8,134
Pleuro virus despatched	81,352
Setsons despatched	44,077
Blackleg vaccine despatched	1,560
Bleeders supplied	22
Animals stalled	123
Lactic cultures despatched	163
Inward correspondence	3,945
Outward correspondence	6,064
Specimens examined	2,286
Blood samples suspected of contagious abortion examined	1,138

Mastitis appears to be on the increase, and 20,364 cows have been under treatment with vaccine made at this station in various parts of the State. The dosage has varied from 2 ccs. up to 10 ccs. of vaccine as a single dose, depending on the severity of the disease and its duration before commencing treatment.

About 500 letters were sent out to various districts to those who had used this vaccine, and 80 per cent. of the replies received were favourable. The remaining 20 per cent. did not receive complete satisfaction, and about 2 per cent. of them stated that it not only did not give the results claimed for it, but that it was useless. This result may be regarded in the light of our present knowledge as very satisfactory, especially when it is considered that in every instance the vaccine was used without any supervision by the farmers who owned the diseased cattle. And it may be of passing interest to note that the best results were obtained from those who, judging by their letters in reply to our inquiries, were of more than ordinary average intelligence and had natural powers of observation not possessed by the majority who purchased the vaccine.

Preventive Measures.—These must still be regarded as an important factor in not only warding off this trouble, but also as an aid to treatment. They consist of measures taken to make certain that a reasonable amount of cleanliness is always necessary in dealing with such a perishable product as milk; and include the clipping of the hair on the cow's udder and escutcheon and other dependent parts of the abdomen as far forward as the umbilicus twice during the lactation period, and the injection of mastitis vaccine in doses of about 7 cc. and more, depending on the age and average weight of the animal to be treated. Both before and after calving, and when milking machines are being operated for the first few weeks, a low vaccum in addition not only assists, but must be regarded in the light of present experience as beneficial to the extent that outbreaks do not occur. Therefore, it is reasonable to suppose that they would to a certain extent, if not entirely be prevented by taking the precaution referred to. The leaflet issued by the Station—"The Care of the Cow after Calving"—should assist greatly, even if only partial notice is taken of the advice contained in it.

There is still, however, much to be learnt of the true origin of mastitis. I am inclined to the belief that several strains of bacteria and cocci as isolated by us are only secondary invaders that have aggravated an already existing condition, the primary cause of which is, at present, obscure or not sufficiently in evidence to establish the fact definitely. With the object of further investigation it has been decided, during the current year to obtain specimens of diseased udders from the abattoir, and milk from dairy farmers, in order to continue studies of the probable cause or causes of this disease in our dairy herds. There is no doubt that increase in production of the dairy cow has made her more susceptible to this disease. Dietetic deficiency, owing to increased susceptibility through lack of consequential resistance, may be regarded as a contributory factor.

Tick Fever.—Tick fever due to the Cattle tick (*Boophilus microplus*) has been very prevalent this year. The season of increased rainfall and greater humidity was favourable for its propagation. The greatest losses occurred chiefly among animals of from one to three years of age, the the latter predominating; and this may be accounted for by the fact that the two previous years being fairly dry the conditions were unfavourable for tick propagation, with the result that natural infestation did not occur and the natural relative immunity created thereby was absent, making young growing cattle very susceptible. This could be overcome by inoculating the young calf crop every year with 3 ccs. of virulent blood of tick fever purchasable at this station, and which would enable them to carry a certain amount of resistance through a susceptible period, and so reduce losses to a minimum.

Pleuro Pneumonia.—The virulent pleural exudate known as virus has been collected from natural outbreaks of this disease in various parts of the State for purposes of preventive inoculation. This operation is carried out by means of the insertion of a saturated seton in the end of the tail. This is not a satisfactory method as the liability of contamination is very great. The injection by means of a hypodermic syringe and needle is by far the better method, as it is cleaner and should be more extensively practised in place of the seton method.

Over 80,000 doses of this virulent pleural exudate were sold for preventive inoculation, and it may be assumed that over 100,000 cattle were inoculated with this virus.

No complaints were received from purchasers of this virus even as far away as Northern Australia. A very careful check has been kept on this product, and nothing but the best has been sent out. Some method, however, will have to be evolved by which we could inoculate the yearly calf crop so that they could carry a fairly solid immunity for a few years if not for life. It is well known, however, that some animals are very resistant to this disease under all conditions of infection, while others are extremely susceptible.

Blackleg.—Several outbreaks of blackleg disease have occurred, one within the metropolitan area. The practice of annual vaccination of young cattle of susceptible age in localities where this disease is known to occur is being undertaken by stockowners in various parts of Queensland, so that it is reasonable to assume that the preventive value of the blackleg vaccine as made at the Station is appreciated and is a useful factor in controlling the disease.

Bleeders.—It has been the practice to purchase cattle in clean tick-free areas and inoculate them with known virulent blood of tick fever, and they are sold as reservoirs of recovered blood to stockowners. Twenty-two bleeders were sold in the course of the year; 8,134 doses of similar blood have been forwarded to various parts of the State, and it is gratifying to be able to state that uniformly satisfactory results have been obtained from this blood, especially when the inoculation has been carried out under departmental supervision. Apparently so little is known of the ravages of the tick that in one or two instances clean cattle have been taken to ticky areas and only inoculated after they had commenced to die of tick fever; in spite of this, the inoculated cattle have come through with very little loss—a fraction of 1 per cent. under paddock conditions.

Contagious Abortion.—Contagious abortion seems to be on the increase, chiefly because insufficient control is being exercised among known herds of infected cattle. There is no doubt that it is one of the principal causes of sterility among dairy cows and that, so far, there is no known satisfactory remedy to cope with it. Great care should be exercised in the supervision of herds which supply the warm and cold milk to growing centres of the population. No infected cattle should be allowed to produce milk for sale, for it is now generally known that the undulant fever of man can be traced to this disease among cows and pigs. Employees at bacon factories and at other establishments where pig products are manufactured for sale have been known to suffer from undulant fever, brought about by actual contact with the carcasses of pigs slaughtered at those establishments. More use should be made of this Station, for blood tests are made without charge.

Numerous calls were received and satisfactory advice given to owners of cattle over the long-distance telephone, where no veterinary surgeon was available. Several calls have been received from North Queensland at a distance of over a thousand miles.

The reports of Mr. F. H. S. Roberts, M.Sc., Parasitologist; Mr. Ladewig, B.Sc. Agr., Experimentalist; and Mr. K. S. McIntosh, B.V.Sc., Veterinary Officer, are appended.

J. A. RUDD, Director.

STAFF REPORTS.

Mr. K. S. McIntosh, B.D.A., B.V.Sc., Veterinary Officer, reports:—

On the 14th May, 1934, I commenced duties as Veterinary Officer, stationed at the Animal Health Station, Yeerongpilly.

During the year approximately 249 specimens were dealt with in the Veterinary Officer's Laboratory, for diagnostic purposes as follows:—Horses 8, cattle 84, sheep 13, pigs 25, other animals 6, poultry 107, other birds 6.

The following conditions were encountered:—

- Specific conditions due to micro-organisms: Actinomycosis, Anaplasmosis, Bacillus necrophorus infection, Bacillary white diarrhœa, Blackhead, Bitulism, Caseous lymphadenitis, Coccidioses, Mammitis, Piroplasmosis, Pleuro-pneumonia, Spirochaeosis, Tuberculosis.
- Non-specific conditions due to micro-organisms:—Pyaemia, Septicaemia, Toxaemia.
- Conditions not due to micro-organisms:—Enzootic haematuria, New growths, Parasites internal and external, Plant poisoning, Poisoning (other than by plants).

In the course of the year two outbreaks of Blackhead in turkeys were investigated. The extent of this disease is at present unknown.

Some of the stock inspectors have now been issued with specimen boxes and early in the forthcoming year this issue will be completed. It is also proposed to issue all inspectors with field outfits of pasteur pipettes, specimen tins, &c., to facilitate the submission of specimens. Of the total specimens received 10 per cent. were unfit for examination, owing to faulty preservation, &c. Many specimens were unsuitable for the diagnosis of the disease suspected.

Arrangements have been made for inspectors to forward suitable material for examination, together with careful and accurate reports regarding stock diseases, in addition to the usual notification of scheduled diseases. In this way, a more complete and accurate survey of disease conditions in Queensland will be possible.

Throughout the year numerous replies were forwarded to stockowners dealing with disease problems. The outstanding troubles appear to be poultry diseases, sterility in dairy cattle, and diseases of pigs.

Field investigations of disease problems were continued.

PARASITOLOGY.

Mr. F. H. S. Roberts, M.Sc., Entomologist, reports:—

Ascaris lumbricoides of Pigs.

Work on this pig parasite was continued throughout the year. It was found that the greatest harm was occasioned to animals under about five months of age. The life history was traced in the guinea pig and pig, and the results confirmed the work of Ransom and Cram (1921) that is, the larvae migrate to the liver and lung per medium of the portal vein, posterior vena cara, right heart and pulmonary artery. Under experimental conditions extensive and marked changes occurred in the liver and lungs, the liver showing varying degrees of cirrhosis, whilst in the lungs larval presence was denoted by conspicuous areas of haemorrhage and consolidation. It was also observed in one experiment in which two seven-day old pigs were used that under conditions of hyperinfestation an immunity to the larvae may be acquired. By gradually raising the dose of infectious eggs from 3,000, the animals in question withstood dosages of 150,000 eggs without manifesting any of the symptoms usually associated with the migration of large numbers of larvae and did not at any time lose condition as compared with the controls. The cosinophile count taken daily showed a marked eosinophilea except towards the end of the experiment when the eosinophile count was if anything below normal.

Oil of chenopodium and castor oil used as recommended by Hall removed 89 to 100 per cent. of the worms from eight pigs. A system of control on the lines adopted in the United States, but with slight modifications was formulated. The results of this investigation will be pubished in detail at an early date.

Sheep Strongyles.

An experiment was commenced early in the year to ascertain the effect of monthly treatments with Carbon-tetrachloride and with Bluestone on three groups of lambs, one held as a control, in the Dalby district. It is too early yet to attempt to draw any definite conclusions from this experiment.

The opportunity is taken to record an outbreak of Trichostrongylosis among lambs on the Darling Downs.

The small Trichostrongyles, although frequently seen in the past among Queeensland sheep had only been seen in moderate numbers and no importance had been attached to their presence. Their increase is probably due to the bounteous rains, especially the winter rains of 1933, and it is considered that the many recent reports of losses among lambs on the Downs are probably concerned with these worms.

The Cattle Tick, *Boophilus Microplus Canes.*

Preliminary experimental work has shown that this tick will reach maturity on horses, sheep, and and dogs, and that female ticks from these three animals will lay viable eggs.

Larvæ from ticks reared on horses and sheep did not transmit the cattle blood parasites, *Anaplasma* and *Pyroplasma*. The ticks maturing on these hosts arose from larvæ, the progeny of females fed on cattle showing Pyroplasma bigeminum and Anaplasma marginale.

It is interesting to note that during the year ticks taken from the wallaby (*Macropus sp.*) and the deer (*Cerous elephas*) were identified as *Boophilus microplus.*

Identifications.

Throughout the year a number of identifications of various species of external and internal parasites were made.

Publications.

The following articles were published in the "Queensland Agricultural Journal":—

1. Ticks infesting domesticated animals in Queensland.
2. Worm parasites of domesticated animals in Queensland.

POULTRY NUTRITIONAL EXPERIMENTS.

Mr. J. E. Ladewig, B.Sc. Agric., Experimentalist, reports:—

The nutritional test with laying hens conducted to determine the value of rations of varying protein levels commenced on the 25th April, 1933, and has been in progress for fourteen months. The rations used were as follows:—

Ration.	Low Protein.	Intermediate Proteim.	High Protein.
	Parts.	Parts.	Parts.
Maize meal	57	54	51
Bran	19	18	17
Pollard	9½	9	8½
Lucerne meal ..	9½	9	8½
Meat and bone meal	3½	7	10½
Linseed meal ..	1½	3	4½
Salt	1	1	1

At the end of twelve months there was no significant difference in the results obtained from feeding these three rations.

The birds fed the low protein ration laid on an average of 208·5 eggs per bird for an average food consumption of 1,450·4 ounces or an average food consumption per egg produced of 6·95 ounces.

Those given the Intermediate protein ration laid 194·0 eggs per bird with food consumption of 1,332·4 ounces per bird; the food consumed per egg produced was 6·86 ounces.

Those given the High protein ration laid 209 eggs per bird with a food consumption of 1,408·1 ounces; the food consumed per egg produced was 6·74 ounces. It was decided to continue this test for another twelve months.

Cockerel-Raising Experiment.

White leghorn cockerels were used in this experiment the object of which was to determine whether these cockerels, which are not generally regarded as suitable for table purposes, could be reared economically to the "prime roaster stage" on rations which, in the main, can be home-produced. This experiment commenced on the 23rd October, 1933, when the birds were six weeks old. The foods used in this experiment were those easily available to the poultry farmer—viz., maizemeal, wheatmeal, and semi-solid buttermilk. This experiment was divided into two sections—

1. The rearing of cockerels in pens.
2. The rearing of cockerels in a battery.

In the pen raised lot 86 cockerels were used. These were divided into three lots, and were fed the following rations:—

Pen 1 (28 cockerels)—Two mashes daily, consisting of 80 per cent. maizemeal and 20 per cent. semi-solid buttermilk.

Pen 2 (28 cockerels)—Two mashes daily, consisting of 80 per cent. wheatmeal and 20 per cent. semi-solid buttermilk.

Pen 3 (30 cockerels)—Dry all-mash, hopper fed 9 parts A mixture and 1 part B2 mixture.

A Mixture—
70 parts maizemeal,
15 parts bran,
15 parts pollard.

B2 Mixture—
50 parts meat and bone meal.
25 parts buttermilk powder,
25 parts lucerne meal.

Supplements—
1 per cent. cod liver oil,
1 per cent. salt.

In the battery raised lot 60 cockerels were used; 10 were penned in each section and fed the following rations:—

Section 1, 2 mashes daily—maizemeal 20 per cent, semi-solid buttermilk 20 per cent.

Section 2, 2 mashes daily—wheatmeal 140 per cent., maizemeal 40 per cent., semi-solid buttermilk 20 per cent.

Section 3, 2 mashes daily—wheatmeal 80 per cent., semi-solid buttermilk 20 per cent.

Section 4, 2 mashes daily—maizemeal 60 per cent., semi-solid buttermilk 40 per cent.

Section 5, 2 mashes daily—maizemeal 90 per cent., wheatmeal 5 per cent, semi-solid buttermilk 5 per cent.

Section 6, 2 mashes daily—wheatmeal 50 per cent., semi-solid buttermilk 50 per cent.

The results obtained from these experiments showed:—

A. In the pen-fed birds that—

(1) The birds fed on the all-mash ration were as heavy at seventeen weeks as were those fed maize-wheat at twenty-one weeks.

(2) The cost of feeding from the age of six weeks until the cockerels attained the weight of 55 ounces was—All-mash 12·6d., wheat and milk 17·3d., maize and milk 17·9d.

(3) That the rate of development appeared to be somewhat associated with the crude protein content of the ration.

B. In the battery-fed birds that—

(1) Pen 6 and Pen 5 made the most economical gain up to 55 ounces in weight at a food cost of 13·8d. in the case of Pen 6, and 12·5d. in the case of Pen 5. However, in this connection it must be noted that whereas the birds in Pen 6 attained this weight at fourteen weeks of age those in Pen 5 did not reach this weight until twenty-one weeks old.

The results of these tests indicate—

(*a*) That the battery system of rearing is efficient.

(*b*) That the best results were obtained by the feeding of a ration carrying a slightly higher protein content than that usually used for growing pullets.

(*c*) That as milk induces consumption, and is a desirable protein rich food, it should be used in all rations in the same form when easily obtainable.

(*d*) That variety in the ration appears to give the most economic results, and appears a necessity to increase economically the protein level.

CHICKEN-RAISING EXPERIMENT.

The object of this experiment was to determine at what age it is most economical to cease feeding chickens on a ration with a high protein content and substitute a ration with a lower protein content. This experiment commenced on the 11th September, 1933, and continued until the birds were twenty-one weeks old. The chickens were purchased as day-old, and were divided into four pens each containing eighty chickens.

From day old to six weeks old all the chickens were fed on a ration consisting of eight parts of A Mixture to two parts of B Mixture. (For constituents of A and B Mixtures, see below.)

At six weeks old Pen 1 was fed nine parts of 1 Mixture to one part of B2 Mixture. This ration was continued until laying commenced. The other three pens were fed a ration consisting of eight parts of A Mixture to two parts of B2 Mixture.

At nine weeks old Pen 2 was given the 9A 1B2 Mixture. At twelve weeks old Pen 3 was given the 9A 1B2 Mixture, and at fifteen weeks old Pen 4 was given this mixture, so that from fifteen weeks old until laying commenced all pens were being fed the 9A 1B2 Mixture.

A Mixture.	B1 Mixture.	B2 Mixture.
70 parts maizemeal 15 parts pollard 15 parts bran	70 parts dried buttermilk 30 parts meat and bonemeal	50 parts meat and bonemeal 25 parts dried buttermilk 25 parts lucerne meal

Briefly the results were as follows:—

—	Pen 1.	Pen 2.	Pen 3.	Pen 4.
Average weight of birds at 21 weeks old	52·5 oz.	52 oz.	53·5 oz.	53·5 oz.
Total food consumption per bird	279 oz.	297 oz.	285 oz.	289 oz.
Total food costs per bird	16·7d.	17·8d.	17·4d.	17·8d.
Average food cost per oz. gain in weight per bird	·326d.	·350d.	·333d.	·340d.

The results seem to indicate that there is no apparent advantage in feeding a high protein ration after the expiration of six weeks, but it will be necessary to repeat this test before any conclusions can be arrived at.

One feature of note during this experiment was that the sex of the chickens could be determined accurately weeks earlier than the generally accepted age. This was due probably to the accelerated development of the secondary sex characters, particularly comb development, as well as increased body growth due to the high protein feeding in the early stages.

At the conclusion of this rearing test the birds were placed in a laying test on 1st March, 1934, and all were fed a uniform ration with a 15 per cent. protein content in order to determine the effect, if any, that the system of feeding growing stock has upon egg production. This test is continuing satisfactorily, the ration fed being as follows:—Maizemeal, 57 parts; bran, 19 parts; pollard, 9½ parts; lucerne meal, 9½ parts; meat and bonemeal, 3½ parts; linseed meal, 1½ parts; salt, 1 part.

HEN-FATTENING TEST.

During the year a test was conducted upon a small scale with the fattening of culled hens. These hens, when culled, were placed in a battery and fed a ration containing 18 per cent. of protein. The hens were in very good condition when placed in the test, and it was not surprising to find that little, if any, gain in weight was made during the three weeks they were in the test. The results of this experiment indicated that culled hens cannot be economically fattened if they have been given a satisfactory ration whilst they were laying.

PIG NUTRITIONAL EXPERIMENTS.

These experiments commenced in January, 1934, crosses of the four breeds—Large White, Middle White, Tamworth, and Berkshire—being used. The object of these experiments is to determine whether pigs can be economically raised to marketable weights with the complete exclusion of milk foods from the ration, the protein supplement being meat meal. The ration used is as follows:—40 per cent. pollard, 40 per cent. maizemeal, 10 per cent. meat meal, and 10 per cent. lucerne chaff.

A mineral supplement consisting of 75 per cent. tri-cal-os and 25 per cent. salt is added to the ration at the rate of 2 lb. per 100 lb. of the above mixture. From the date of weaning until the completion of the test the pigs were given the food *ad lib* in the dry state in self-feeding hoppers. A suitable amount of green fodder was given to the pigs daily at midday.

The first cycle of the tests is not yet complete, but a summary of results to date is as follows:—

Details.	Tamworth X Berkshire (A)	Tamworth X Berkshire (B)	Berkshire Large White.
Number of pigs	3	4	6
Average commencing weight	32·6 lb.	38·8 lb.	30·6 lb.
Number of days fed	92	98	64
Average final weight	124·8 lb.	149·4 lb.	106·9 lb.
Average dressed weight	92·0 lb.	115 lb.	74·5 lb.
Percentage loss on slaughter	26·3%	23%	30·3%
Average gain in live weight per pig	92·2 lb.	110·6 lb.	76·3 lb.
Average daily gain live weight per pig	1·00	1·13 lb.	1·19 lb.
Average food consumption per pig	317 lb.	403·7 lb.	221·3 lb.
Cost of food consumed per pig	246·6d.	313·8d.	170·9d.
Food consumed per live weight gain per pig	3·44 lb.	3·65 lb.	2·90 lb.
Food costs per lb. gain in live weight per pig	2·67d.	2·84d.	2·24d.

As the test is not finished, no conclusions can be arrived at from the above results.

Mr. C. V. Massie, of the Queensland Meat Industry Board, commented very favourably on the Tamworth-Berkshire cross, both the porkers and light baconers. Regarding the light baconers he reported:—

> "The quality of these pigs was very good, well done, without being overdone with excessive fat. As light baconers they would be considered very satisfactory in the trade."

Regarding the Tamworth-Berkshire cross porkers, he reported:—

> "These were good conditioned pigs, firm in flesh, good full rumps and loins, and practically free from scratches . . . .

> and would be considered as good porkers for the export trade. On the whole, the pigs were good shape, with long bodies and good full legs."

Regarding the Berkshire-Large White cross, he reported:—

> "The whites were all more or less very flabby and soft in the flesh, and resembled slop-fed pigs, badly wrinkled about the rumps and loins, needing more finish and hardening up, several being a little high in colour. These pigs, though graded into first quality export, were not quite up to the standard of that grade. For domestic purposes the Berkshire-Large Whites would be more suitable for the trade than the Tamworth-Berkshire cross, owing to their lighter weights and not carrying so much fat."

In connection with this report it must be remembered that these Berkshire-Large White pigs were marketed at eighteen weeks old, and therefore did not have the extra finish necessary for the export trade.

Tattooing experiments were also conducted in conjunction with the feeding tests, in order to determine the most suitable inks to use for tattooing pigs. A large variety of dyes have been used, but as these tests are incomplete no conclusions can be reached.

REPORT OF THE REGISTRAR OF PRIMARY PRODUCERS' CO-OPERATIVE ASSOCIATIONS.

"The Primary Producers' Co-operative Associations Acts, 1923 *to* 1926."

In accordance with Rule 52 of Part II. of the Schedule to the abovenamed Acts, I have the honour to submit, for transmission to the Governor in Council, my report for the year ended 30th June, 1934.

Since my last report thirteen additional associations have been registered, making a total of 183 associations and 1 federation registered under the Acts.

The registrations for the year under review were:—

The Mungore Co-operative Dip Association, Limited.

Tingoora Co-operative Dip Association, Limited.

The Country Producers' Co-operative Association, Limited.

The Downs Co-operative Stores Association, Limited.

The Sugarloaf Dairy Co-operative Association, Limited.

The Co-operative Tobacco Grower's Association, Limited.

The Mutdapilly Co-operative Dip Association, Limited.

The Churchbank Co-operative Dip Association, Limited.

Warm Milk Producers' Co-operative Association, Limited.

The Minden Co-operative Dip Association, Limited.

The Yamsion Co-operative Dairy Association, Limited.

The Ma Ma Creek Co-operative Dip Association, Limited.

The Co-operative Peanut Growers' Association of Central Queensland, Limited.

The associations registered under the Acts to 30th June, 1934, are listed below:—

Bacon Associations.—Having a capital divided into shares with limited liability	4
Canning, Jam, and Preserving Association.—Having a capital divided into shares with limited liability. (Since cancelled) ..	1
Carrying Association.—Having a capital divided into shares with limited liability	1
Chicken Hatchery Association.—Having a capital divided into shares with limited liability ..	1
Cold Storage Federation.—Having a capital divided into shares with limited liability ..	1
Cotton Association.—Having a capital divided into shares with limited liability	1
Dairy, Butter, and Cheese Associations—	
Having a capital divided into shares with limited liability	55
Without share capital, with liability limited to the assets of the Association..	4
Dip Associations.—Having a capital divided into shares with limited liability	24
Egg Producers' Association.—Without share capital with liability limited to the assets of the Association	1
Farmers' Association.—Without share capital with liability limited to the assets of the Association	1
Farmers' Distributing Association.—Having a capital divided into shares with limited liability	1
Fat Pig Selling Association.—Without share capital with liability limited to the assets of the Association	1
Fruitgrowers' Associations—	
Having a capital divided into shares with limited liability	5
Without any share capital with liability limited to the assets of the Association ..	56
Fruit, Vegetable, and Poultry Association—Having a capital divided into shares with limited liability	1
Fur Farming Association.—Having a capital divided into shares with limited liability ..	1
Packing Associations.—Having a capital divided into shares with limited liability	3
Peanut Growers' Associations.—Having a capital divided into shares with limited liability ..	2
Producers' Associations.—Having a capital divided into shares with limited liability ..	5
Publication Association.—Having a capital divided into shares with limited liability ..	1
Stock and Produce Associations.—Having a capital divided into shares with limited liability	3
Stores Association.—Having a capital divided into shares with limited liability	1
Sugar Associations—	
Having a capital divided into shares with limited liability	1
Without share capital with liability limited to the assets of the Association	8
Tobacco Growers' Association.—Having a capital divided into shares with limited liability ..	1
Associations without share capital with unlimited liability	Nil
	184

Since the Acts came into force several associations have amalgamated, the registrations of others have been cancelled, and some have ceased to function and are being wound-up voluntarily, so at present there are actually 177 associations registered under the Acts.

Several associations have amended their rules to meet the changing circumstances, and there are other associations considering the question of amalgamation with a view to securing more economical working and further co-operative efficiency.

Some exemptions have been granted from the provisions of the Acts, and 166 auditors have been licensed thereunder.

JAMES P. ORR,
Registrar of Primary Producers'
Co-operative Associations.

REPORT OF THE DIRECTOR OF MARKETING.

In accordance with the provisions of "*The Primary Producers' Organisation and Marketing Acts,* 1926 *to* 1932," I have the honour to submit herewith a report of the operations of the pools that have been constituted in relation to the various commodities under the Legislative measures which have been enacted to provide for the organised marketing of primary products in Queensland.

My last report indicated fourteen products which had been declared commodities under existing legislation, and this number has now been increased to fifteen by the addition of plywood and veneer, which have been declared commodities under the Acts.

The pools now operating in Queensland are as follows:—

Arrowroot, constituted in 1922 without any opposition;

Atherton Maize, constituted in 1923 without any opposition; renewed in 1932 by a 56⅔ per cent. majority;

Barley, constituted in 1930 by an 81 per cent. majority;

Broom Millet, constituted in 1926 without any opposition; renewed in 1929 without any opposition, and again without opposition in 1931;

Butter, constituted in 1925 by a 75 per cent. majority; renewed in 1928 without any opposition; renewed in 1931 without any opposition; renewed in 1934 without any opposition;

Canary Seed, constituted in 1926 by a 75 per cent. majority; renewed in 1930 without any opposition, and again in 1933 without opposition;

Cheese, constituted in 1923 by a 91 per cent. majority; renewed in 1925 without any opposition; renewed in 1927 without any opposition; renewed in 1930 without any opposition; renewed in 1933 and again in 1934 without opposition;

Cotton, constituted in 1926 without any opposition; renewed in 1931 without any opposition;

Eggs, constituted in 1923 by an 87 per cent. majority; renewed in 1925 by a 73 per cent. majority; renewed in 1926 by a 66¾ per cent. majority; renewed in 1929 by a 70 per cent. majority, and again in 1933 without any opposition;

Fruit (Committee of Direction of Fruit Marketing) constituted under special legislation in 1923 for a period of three years. The Act provided for a ballot being taken at the end of the three-year period in the event of 500 growers demanding such ballot, but until 1929 no such petition was received. The continuance of the Committee of Direction of Fruit Marketing for a further period of five years was affirmed by the growers in December, 1929, by an 87 per cent. majority;

Honey, constituted in 1929 without any opposition, and renewed in 1934 by a 59 per cent. majority;

Northern Pigs, constituted in 1923 without any opposition; renewed in 1926 without any opposition; renewed in 1931 by a 56 per cent. majority;

Peanuts, constituted in 1924 without any opposition; renewed in 1925 without any opposition; renewed in 1926 by a 90 per cent. majority; renewed in 1930 by an 85 per cent. majority;

Plywood and Veneer, constituted in 1934 without any opposition;

Wheat (under the Wheat Pool Acts), established in 1921 by a 97½ per cent. majority; extended in 1924 by an 89 per cent. majority; extended in 1928 without any opposition, and again extended in 1934 without opposition.

ARROWROOT BOARD.

Personnel of the Board to 14th April, 1937.—Messrs. R. Stewart (chairman), J. F. Cassidy, A. Rose, C. Brumm, G. R. Walker, and E. Graham (Director of Marketing).

The Board's recommendation in June, 1933, that Mr. G. R. Walker fill the vacancy created by Mr. G. C. Sempf's resignation was approved by the Minister, and Mr. Walker duly elected. The Board's term of office expired on the 14th April, but the only nominations received were from the sitting members, who were, as a consequence, returned unopposed for a further three years, Mr. Stewart being appointed chairman.

1932 Season.—In relation to the 1932 season, in addition to the first advance of 20s. per ton, growers have received to date a second advance of 7s. 6d. per ton on bulbs delivered to the mills.

The average sale price per ton of flour realised up to the present is £34 2s. 9d.

1933 *Season.*—The quantity of flour manufactured was 707 tons. Stocks on hand as at 30th June, 1934 are—

	Tons.	cwt.	qrs.	lb.
Balance of 1932 season ..	64	1	3	21
Balance of 1933 season ..	233	3	0	0
	297	4	3	21
Less deliveries still to be made against contracts	225	5	1	14
Balance on hand unsold ..	71	19	2	7

A first advance of 20s. per ton has been paid to growers for bulbs delivered to the mills, while the millers received a first payment of £10 per ton on delivery of arrowroot flour to the Board.

During the year just ended the Board had to meet competition by coming down to the level of the prices offered by dissenting millers who endeavoured to make direct sales.

At a conference on the 11th June between the Board and the signatories to the 1933 agreement the millers expressed their appreciation at the satisfactory manner in which the Board handled their affairs during the twelve months in question, and decided unanimously to enter into another agreement for three years, commencing with the 1934 season.

The negotiations for the financing of the 1933 crop were successfully concluded with the Bank of Australasia, through the instrumentality of the Board's agents, who were reappointed for a further three years.

ATHERTON TABLELAND MAIZE BOARD.

Personnel of the Board to 31st March, 1935.—Messrs. W. Bailey (chairman), L. R. Crouch, P. G. Martin, R. Hill, L. R. Tostevin, and E. Graham (Director of Marketing).

Mr. L. R. Tostevin was appointed to the Board on 26th April, 1934, *vice* Mr. H. H. Collins, resigned.

During the year a change was also effected in the managership of the Board. The position of secretary and manager was held by Mr. F. G. Winzar until the 3rd January, 1934, and from the time of his departure until the appointment of a new manager and secretary the position was occupied by one of the members of the Board—Mr. H. H. Collins. Mr. W. H. Scott was appointed to the position on 18th June last.

The total quantity of maize delivered to the pool during the year was approximately 4,000 tons in excess of that received during the previous season. The gross delivery to the Board was 21,740 tons, and the deductions for moisture, offal, &c., amounted to 772 tons, leaving the net balance of 20,968 tons. Only 28 tons of this quantity were graded as second class. There was a carry-over of maize from the 1932-33 pool, which made a total of 21,067 tons to be disposed of by the Board last season. Of this quantity there is a surplus of 2,300 tons, which has been taken over by the 1934-35 pool at £5 10s. a ton in silos.

The average selling price for maize per ton for the year was:—

	£	s.	d.
Northern Queensland	7	2	8
Maize Products Pty. Ltd. and T. McHugh Ltd.	6	0	0
Melbourne and Sydney consignments ..	4	0	0

all prices being for maize on trucks, Atherton.

The sales on the northern market were slow throughout the year, largely occasioned by the excessive rains experienced in all the sugar areas supplied by the Board. Good rains were general throughout the western sheep areas, with the result that the demand from these districts was negligible.

Growers have received £4 15s. a ton on maize delivered to the pool, and it is anticipated that a final payment of 9s. a ton will be made to growers within a few weeks. The total payment to growers will amount to £5 4s., which is a considerable decrease on last year's price of £7 15s. 6d.

The handling charges of the pool for the year, including payments of interest and redemption, bags, silo costs, and administrative expenses, amounted to £1 4s. 2d. per ton, which was a decrease of 3s. a ton on last year's expenses.

As mentioned in my report of last year, the Board was successful in obtaining from the Government a loan of £15,000 for the purpose of providing additional storage accommodation. The work of erecting the necessary bins has now been completed, and the Board was enabled to handle the large crop of last season without difficulty.

BARLEY BOARD.

Personnel of the Board to 30th September, 1934.—Messrs. E. Fitzgerald (chairman), H. Kessler, and E. Graham (Director of Marketing).

1932-33 Season.—During the 1932-33 season the Board received 77,360·11 bushels which were accounted for as follows:—

	Bushels.	lb.	
Used for malting ..	27,696		
Used for feed barley and barley meal ..	46,716	29	
Loss in handling ..	2,947	32	= 3.8 per cent.
Total	77,360	11	

Quantity malted, 27,696 bushels = 50 lb. per bushel.
Malt sold, 28,666.18 = 40 lb. per bushel.
The gain by conversion of barley to malt was 970.18 bushels.

A quantity of malt, comprising 150 bushels Cape and 200 bushels Chevalier, was undelivered at the 30th June, and, in order that the final payment to growers would not be delayed any further, it was decided to carry over same into 1934-35 season.

Advances have been made to growers as under:—

		Per bushel.	
		s.	d.
22,403.41	bushels Chevalier, No. 1 ..	2	6
6,957.21	bushels Chevalier, No. 1A ..	2	5
12,230.13	bushels Chevalier, No. 2 ..	2	4
7,435.46	bushels Chevalier, No. 2A ..	2	3
1,829.35	bushels Chevalier, No. 3 ..	2	2
14,260	bushels Cape	2	0
12,243.5	bushels Feed	2	0

It has been arranged to make a final advance as follows:—

	Per bushel.
	d.
Malting	6½
Cape (malting)	3
Feed	2

Consequently the total net payment to growers will amount to—

Per bushel.		
s.	d.	
3	0½	for No. 1 Chevalier Barley.
2	11½	for No. 1A Chevalier Barley.
2	10½	for No. 2 Chevalier Barley.
2	9½	for No. 2A Chevalier Barley.
2	8½	for No. 3 Chevalier Barley.
2	3	for Cape Malting Barley.
2	2	for Feed Barley.

Payments to growers to date of this report amount to £8,747 0s. 7d. net, and when the final advance is paid will total £10,413 16s.

1933-34 Season.—At the meeting of the Board on 14th September, 1933, Messrs. Denhams Pty. Ltd. were reappointed as selling agents for the 1933-34 crop on similar terms to those operating previously.

Deliveries to the Board to date have totalled 93,617 bushels, comprised of 50,004 bushels Chevalier, 18,929 bushels Cape, and 24,684 bushels of feed barley.

This season's barley has been classified as follows:—

	Per bushel.	
Malting.	s.	d.
No. 1	3	6
No. 1A	3	5
No. 2	3	4
No. 2A	3	3
No. 3	3	2
No. 3A	3	1

A first advance of 2s. per bushel has been paid on malting, less the respective dockages, while on Cape and feed barley an advance of 1s. 3d. per bushel has been made to date.

Excessive damage by hail was experienced during the season, claims on 11,765 bushels being approved. The first advance payments to date amount to £544 0s. 10d.

The Board was again successful in obtaining a contract for the sale of a quantity not exceeding 40,000 bushels of prime Chevalier malting barley at the same price as last year. Arrangements were also concluded for the sale of 40,000 bushels of malt. The Board's agents have again undertaken to conduct the malting operations on the Board's behalf. Negotiations between the Barley and Wheat Boards resulted in the former again securing the malting premises, but on a different basis from previous years. The present terms provide for a higher rental and a lease for one year definite, with the option of a further twelve months' tenure, and the right to terminate the lease at the end of any six-month period.

BROOM MILLET BOARD.

Personnel of the Board to 31st October, 1934.—Messrs. H. Niemeyer (chairman), E. M. Schneider, and E. Graham (Director of Marketing).

At the Board election held on 20th October, 1933, Messrs. Niemeyer and Schneider were again re-elected, Mr. Niemeyer being appointed chairman.

1932-33 Season.—Owing to the crop being a light one, the Board did not exercise full control. However, it was necessary for growers to send their broom millet to one of the Board's agents—State Produce Agency Pty. Ltd., Brisbane, or Denham Bros. Pty. Ltd., Rockhampton. During this period a total of 138 tons 19 cwt. 2 qr. 10 lb. was received and sold, 131 tons 15 cwt. 3 qr. 16 lb. being sold in Brisbane, and 7 tons 3 cwt. 2 qr. 22 lb. being sold in Rockhampton. The total crop realised £5,125 5s. 11d., or an average of £36 17s. 5d. per ton; the maximum price obtained was at the rate of £52 10s. per ton, and the minimum price £25 per ton.

1933-34 Season.—During the period 1st December, 1933, to 8th February, 1934, owing to the uncertainty of the crop complete control was not exercised. However, as large quantities commenced to come on to the market about this time, the Board decided to exercise full control as from 9th February, 1934. During the period 1st December, 1933, to 8th February, 1934, 31 tons 19 cwt. of broom millet were sold, which realised £1,028 3s. 10d., or an average of £32 2s. 7d. per ton, prices ranging from £25 to £40 per ton.

Within the year the Board instituted a different basis of payment to growers, and new grade descriptions were adopted, namely:—

A grade (hurl).
B grade (prime self-working).
C grade (insides and covers).
D grade (discoloured).

Arrangements were made with the agents in consideration of the receipt of a further 1½ per cent. commission, to make an advance of £10 per ton on all millet held in store on the 9th February, 1934, and also to pay a first advance at the same rates on all receivals subsequent to that date, such payment to be made as soon as possible after delivery. Upon there being a surplus of funds from sales, over and above the total of the first advance, freight, and other charges, a second advance is to be made. Further advances are to be paid immediately additional funds from the proceeds of sales are available.

Any broom millet received of such inferior quality that it cannot be classified under any of the grades laid down by the Board is sold, on behalf of the grower concerned, at the best possible price obtainable, and the proceeds remitted to the grower after deducting the usual charges, together with 10 per cent. commission, half of the latter amount being credited to the Board.

Advances paid to growers to date amount to—

	Per ton.		
	£	s.	d.
A grade	17	10	0
B grade	17	10	0
C grade	10	0	0
D grade	10	0	0

The following table sets out the position since the Board exercised full control on the 9th February last in so far as quantity received, sales, &c., are concerned:—

	Tons.	cwt.	qr.	lb.
Millet on hand at 8th February, 1934 ..	68	13	0	15
Millet received during period 9th February, 1934, to 30th June, 1934, and taken into Pool	57	4	1	14
Inferior millet received during period 9th February, 1934, to 30th June, 1934, and not taken into Pool ..	4	11	3	27
Total received ..	130	9	2	0
Quantity sold ..	56	10	0	2
On hand unsold at 30th June, 1934 ..	73	19	1	26

and of this quantity 1 ton 6 cwt. 3 qr. is millet of inferior quality.

MILLET TAKEN INTO POOL AND SOLD DURING PERIOD 9TH FEBRUARY, 1934, TO 30TH JUNE, 1934.

Grades.	Quantity.				Amount Realised.			Average per Ton.		
	Tons.	cwt.	qr.	lb.	£	s.	d.	£	s.	d.
A	2	7	1	18	84	3	3	35	15	0
B	9	19	3	14	333	9	9	33	7	0
C	19	18	0	21	606	19	0	30	10	0
D	20	19	1	6	560	17	10	26	15	0
Inferior millet not taken into pool ..	3	5	0	27	59	10	3	18	5	0
Total millet sold	56	10	0	2	£1,645	0	1	..		

BUTTER BOARD.

Personnel of the Board to 7th February, 1935.—Messrs. J. Purcell (chairman), W. J. Sloan, J. McRobert, T. F. Plunkett, A. G. Muller, R. M. Hill, and E. Graham (Director of Marketing).

Mr. R. M. Hill was appointed to the Board on 24th August, 1933, *vice* Mr. J. L. Wilson, resigned.

As the term for which the pool was created expired on the 30th June, 1934, growers were given an opportunity to decide whether or not the pool should be extended for a further period. A petition requesting that a ballot be taken on the extension or otherwise of the pool was not forthcoming, and on the 29th June last an Order in Council was issued extending the operations of the pool until the 7th February, 1935. The term of office of the members of the Board was also extended to that date, which coincides with the date of the expiration of the term of office of the members of the Dairy Products Stabilisation Board.

As a result of the rapid expansion that had taken place in the dairy industry within recent years, it had become more obvious that as production continued to increase in volume there simultaneously occurred a proportionate reduction in the financial benefits to be derived from the application of the principles involved in what is known as the Paterson Scheme. With the advantages of this scheme rapidly approaching a vanishing point, the industry had reached such an unfavourable position in January, 1933, that those prominent in the industry in the various States were called together for the purpose of discussion as to the ways and means whereby there could be effected some improvement in the returns to dairy farmers.

The two main points of view as expressed at the conference were—

(1) The legalising of the Paterson Plan; and

(2) Commonwealth and State legislation to provide for equalisation of prices on an Australian basis.

It was found subsequently that constitutional difficulties would have to be overcome to give effect to either proposal.

A further conference was convened in April, 1933, and a committee was formed to consider the possibility of giving effect to the decisions arrived at and to investigate the applicability of the dried fruits legislation to the dairying industry. The outcome of these investigations was that before the end of the year legislation was introduced by the Commonwealth Government and the Governments of Queensland, New South Wales, Victoria, and Tasmania. This legislation, which is almost identical in the four eastern States, provides that the manufacturers shall sell a prescribed percentage of their manufacture within the State.

The Commonwealth legislation prevents undue interstate competition by ensuring that before any manufacturer transfers butter interstate he must have satisfied the Commonwealth authorities that the export quota as fixed for the time being has been met.

Taken in conjunction, the State and Commonwealth legislation provide that every manufacturer in the Commonwealth shall secure only his fair share of the better local market which stabilisation makes possible.

A Dairy Products Stabilisation Board has been established in Queensland, and comprises all members of the Queensland Butter Board, together with two members of the Cheese Board —namely, Messrs. H. T. Anderson and A. J. Harvey.

The Board has been appointed for one year as from 8th February, 1934, and, subject to a confirmatory vote of the dairy farmers throughout the Commonwealth, the provisions of the Acts may continue in force for a term of three years. The ballot upon this matter, so highly important to dairy farmers, is to be taken during October next.

Equalisation Plan.—It was found necessary to establish a type of voluntary organisation to maintain stability on the local market by an equalisation of prices. For this purpose there has been formed a Commonwealth committee which has been registered under the Companies Act of New South Wales under the title of "The Commonwealth Dairy Produce Equalisation Committee Limited." This company entered into agreements with manufacturers of dairy produce within the States where legislation had been introduced.

There is doubtless a great deal to commend this method of equalisation, as without any system of organisation in the matter of price maintenance the Australian market would be dominated by London parity. With values ruling as they are at present in London, the effective price in Australia would not exceed 80s. per cwt., whereas through the equalisation plan the industry is able to maintain a value of 140s. per cwt., or £60 per ton better than London parity. Between 70,000 and 75,000 tons of butter are sold annually on the Australian market, and it will thus be seen that the plan is worth approximately £4,500,000 per annum to the dairy farmers of the Commonwealth.

Production and Sales for the Year.—The total quantity of butter produced during the year ended 30th June, 1934, was 2,212,707 boxes (each of 56 lb.). Of this quantity, 425,566 boxes were consumed in Queensland. Particulars of the disposal of the butter produced within the year and the average prices realised during each month are given below:—

STATEMENT SHOWING TOTAL BOXES (EACH OF 56 LB.) MANUFACTURED, SALES, AND CONSIGNMENTS OF QUEENSLAND BUTTER, JULY, 1933, TO JUNE, 1934.

Month.	MANUFACTURE (Factory Grading).				SALES.			Overseas, S/Stores, and Other Countries.	CONSIGNED AND/OR SOLD TO GREAT BRITAIN.		
	Choice and First.	Second.	Third.	Pastry.	Queensland.	Interstate.	East and Tinners.		Choice and First.	Second.	Pastry.
1933.	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.
July ..	79,017	1,978	92	170	35,773	232	3,368	428	39,418	2,390	542
August ..	85,322	2,676	106	12	39,326	255	3,462	251	43,685	2,317	370
September	108,853	8,714	450	21	36,754	343	4,052	369	55,979	4,250	2,240
October ..	163,628	14,660	405	175	34,988	214	5,468	137	99,081	11,021	3,107
November	206,598	15,673	71	176	35,747	174	5,795	123	153,093	15,859	3,342
December	256,899	20,607	482	758	34,157	186	5,893	250	193,203	18,347	4,182
1934.											
January ..	271,757	23,836	674	1,161	32,525	119	4,979	899	175,648	15,406	8,947
February..	215,996	20,863	869	903	30,869	119	7,164	513	157,548	12,211	6,598
March ..	224,735	18,706	624	727	36,134	3,027	9,156	291	184,745	16,125	12,292
April ..	169,546	10,383	498	272	37,717	4,354	4,044	374	140,031	11,041	6,709
May ..	152,212	5,486	156	113	35,236	..	8,318	246	187,764	9,873	5,723
June ..	122,884	2,726	20	17	36,340	116	6,731	310	85,446	2,771	838
	2,057,447	146,308	4,447	4,505	425,566	9,139	68,430	4,191	1,515,641	121,611	54,890

Particulars of net prices returned to factories on basis of Board's equalisation figures, July, 1933, to June, 1934.

Month.	Quantity Sold. Boxes, each of 56 lb.	Total Net Value.			Net Value per box, each of 56 lb.	Approximate Net Value per lb.	
		£	s.	d.		s.	d.
July	80,977	240,245	7	1	2·9668345	1	0¾
August	88,377	248,921	11	9	2·816588	1	0
September	102,783	264,117	13	4	2·569663	0	11
October	152,614	336,770	19	2	2·2066846	0	9½
November	212,537	418,847	15	2	1·9707052	0	8½
December	254,124	509,608	6	2	2·0053529	0	8⅝
January	236,033	497,594	14	6	2·1081574	0	9
February	212,877	444,215	18	5	2·0867258	0	9
March	259,650	567,414	2	3	2·1853038	0	9⅜
April	300,574	662,031	7	0	2·202557	0	9½
May	376,662	1,031,989	17	4	2·73982914	0	11⅞
June	397,378	1,042,091	0	5	2·62241753	0	11¼
	2,674,586	6,263,848	12	7	2·341988	0	10

NOTE.—As final London figures in respect of April, May, and June, 1934, are not yet completed, the particulars in respect of these months are estimates only.

As from 1st May, 1934, the equalisation was worked out on a Commonwealth basis. Therefore the disposals and realisations shown for May and June are for Queensland, New South Wales, and Victoria.

CANARY SEED BOARD.

Personnel of the Board to 31st May, 1935.—Messrs. G. Burton (chairman), G. D. O'Neill, and E. Graham (Director of Marketing).

The result of the election of members to the Board held on the 30th May was in favour of Messrs. Burton and O'Neill, Mr. Burton again being appointed chairman.

1932-33 Season.—Deliveries to the Board totalled 1,219 tons 9 cwt. 2 qr. 25 lb. of uncleaned seed, which, after cleaning, was disposed of as follows:—

—	Quantity.				Realisation.		
	Tons	cwt.	qr.	lb.	£	s.	d.
Cleaned seed	1,010	11	2	18	30,152	5	6
Gradings	186	12	0	1	739	10	1
Gradings destroyed	4	15	0	0	..		
Waste	17	11	0	6	..		
Total	1,219	9	2	25	30,891	15	7

The whole of the crop has been disposed of, sales averaging £29 17s. per ton for cleaned seed and £3 19s. 6d. per ton for gradings.

The amount distributed to growers by way of the first and second advances amounted to £18,101 13s. 5d., and with the final advance of £7 15s. 2d. per ton, totalled £23,007 0s. 11d., or £22 15s. 2d. per ton net.

Pool charges amounted to £7,889 18s. 11d., equal to £6 9s. 5d. per ton. These include costs of cleaning, shipping and rail freights, cartage, commission, and hail insurance compensation.

1933-34 Season.—Messrs. Denhams Pty. Ltd. were again appointed to handle this crop on similar conditions to those previously in operation. Deliveries to date of this report total 2,148 tons 18 cwt. 1 qr. 14 lb. of uncleaned seed, of which 856 tons 8 cwt. 0 qr. 19 lb. of cleaned seed and 124 tons 9 cwt. 1 qr. 14 lb. of gradings have been sold. Growers have received a first advance of £10 per ton on gross weights immediately on delivery to the pool, except in those cases of very dirty consignments where there was certain to be considerable waste. In such cases payment was held up until after cleaning.

A first advance of £4 15s. per ton has been paid on 151 tons 11 cwt. 3 qr. 10 lb. destroyed by hail. The amount involved was £728 16s.

As a result of investigations in the Southern States last year, it was estimated that the importations of Argentine canary seed approximated 1,000 tons for the twelve months ended 30th June, 1933. The duty of £16 16s. per ton did not deter importers from competing with this lower-priced seed. The Board, under these circumstances, was forced to reduce its price correspondingly, and by adopting this procedure prevented further importations. Before the end of 1933 the whole of the Queensland crop was disposed of, this fact making it quite obvious that the Board was able to hold the market.

The position in the South was again surveyed in May of this year, and it was ascertained that seed was under cultivation in New South Wales, Victoria, South and Western Australia; the anticipated yield from the acreage sown would probably be 500 tons.

The 1933-34 season's receivals by the Board will probably result in a carry-over of about 250 tons, based on the total Australian requirements of approximately 1,500 tons per annum. The Board is watching the position as to next year's prospects very closely, particularly in view of reports of increased Queensland acreages. A yield in excess of the season just passed, together with that anticipated in the Southern States and the 1933-34 Queensland carry-over, may have a decided effect on future sales and prices.

Inquiries were made by the Board during the past twelve months as to the possibilities of the development of an export market should the necessity arise for such. Small samples were submitted through the Agent-General's office to English merchants for an expression of opinion as to quality and value, but the reports received were not encouraging as to price, although the quality compared more than favourably with samples of higher-priced seed produced in several overseas' sources and received here from the office of the Acting Agent-General.

After consideration of all these factors the Board has recommended to growers that acreages should not be unduly increased for the coming season at least.

The difficulties presented by section 92 of the Federal Constitution may further affect the position through the actions of a few ill-advised growers who, during the past season, took advantage of the stabilised price created by the pool, offered canary seed in the Southern States—the principal market for the commodity—and accepted lower prices than the Board. Should this continue, difficulty may be experienced by the Board in its endeavours to maintain the price for its better-grade seed.

The Hail Insurance Regulations were amended in May of this year by provision being made that partially destroyed crops will not be entitled to compensation unless the resultant grain is delivered to the Board, and a return furnished by the grower by the 30th September in each year showing the acreage planted and estimated yield.

CHEESE BOARD.

Personnel of the Board to 31st July, 1934.—Messrs. H. T. Anderson (chairman), D. G. O'Shea, A. J. Harvey, T. Dare, A. Pearce, and E. Graham (Director of Marketing).

At the election of growers' representatives to the Board held on the 30th July, 1933, only one member was opposed, and he was duly re-elected.

The term of the pool was extended during the year for a period of twelve months from 1st August, 1933, to 31st July, 1934.

Production.—The following quantities of cheese were produced during 1933-34:—

	lb.	lb.
Cheddar		13,479,123
Fancy varieties—		
Edam and Roman	194,377	
Cacio Italo	94,482	
Gruyere	74,237	
		363,096
Total production		13,842,219

The quantities manufactured during 1932-33 were 12,705,419 lb. of cheddar and 298,446 lb. of fancy varieties; so that the figures for the past year represent increases of 773,704 lb. cheddar and 64,650 lb. of fancy varieties.

Realisations.—The past year has again been a most difficult one for producers, owing to the continued decline of values on all markets. During the year under review the gross average price was 6·7d. per lb., which shows a decrease of ·4d. per lb. on last year's figure.

The following is a dissection of the disposals of cheese on the various markets during the past year, together with the gross realisations for the product:—

Market.	Lb.	Per cent.	Gross Value.	Average per lb.
			£ s. d.	d.
East	197,534	1·6	4,787 6 11	5·82
Interstate	2,201,969	17·5	63,996 4 5	6·98
Process	1,255,471	9·9	34,014 2 8	6·50
Local	2,422,158	19·2	90,512 3 3	8·97
Export	6,527,551	51·8	158,740 8 7	5·84
Totals	12,604,683	100·0	352,050 5 10	6·70

Final account sales have not yet been received for April, May, and June exports, values for which have been estimated in arriving at the gross values for the year 1933-34.

The total quantity of cheese disposed of was approximately 500,000 lb. in excess of that sold last year, but the gross proceeds of sales fell short of the 1932-33 sales by about £3,500.

Pool Expenses.—The total expenditure incurred in connection with the Board's operations during the year was £1,827 18s. 1d., which is equivalent to 3·48d. per 100 lb. of cheese sold, as compared with 3·09d. for the previous year and 3·92d. for the 1931-32 period.

Stocks.—The movement of cheddar stocks during the year is set out hereunder:—

	lb.	
Cheddar stocks, 1st July, 1933	762,166	(green wt.)
Cheddar manufacture, 1933-34	13,479,123	„
Total	14,241,289	„
Less cheddar stocks, 30th June, 1934	1,074,950	„
Available for sale ..	13,166,339	„
Actual sales	12,604,683	(selling wt.)
Difference representing shrinkage ..	561,656 or 4.2 per cent.	

Exports.—During the year under review 43,058 crates of cheese were exported to the United Kingdom, as compared with 42,064 crates for the previous year and 27,048 crates for 1931-32.

The average London realisations, excluding exchange, for each month's shipments during the past two years are set out hereunder:—

Month.	1932–1933.		1933–1934.	
	Vessel.	Price per cwt.	Vessel.	Price per cwt.
		s. d.		s. d.
July	..	..	Balranald	53 0
August	Northumberland	62 10	Bendigo	47 8
	Cornwall	61 2	Somerset	46 6
September	Hurunui	58 10	Orari	47 1
	Devon	51 0		
October	Orari	49 10	Tekoa	44 10
November	Peshawur	47 11	Middlesex Surrey	43 5
December	Autolycus	46 6	Peshawur Turakina	42 10
	Port Alma	42 6		
January	Tongariro	40 5	Port Campbell Westmoreland	42 11
February	Turakina	40 7	Tongariro	43 1
March	Hertford	48 0	Somerset	44 0
	Hurunui	48 11		
April	Devon	47 8	Limerick (Estimated)	44 0
	Westmoreland	48 1		
May	Tasmania	48 6	Peshawur (Estimated)	47 0
June	Maloja	50 3	Devon (Estimated)	46 0

It was indicated in my last report that the overseas' realisations for the year ended 30th June, 1933, were the lowest on record; but, unfortunately, as will be observed from a comparison of the above figures, values continued to decline during the past year.

COTTON BOARD.

Personnel of the Board to 31st December, 1935.—Messrs. D. C. Pryce (chairman), J. Beck, H. R. Brake, J. P. Fleming, E. J. Basson, F. A. Kajewski, and E. Graham (Director of Marketing).

1933 *Season.*—Particulars of acres planted and the production of cotton for the 1933 season are as follows:—

Number of growers	3,991
Acreage	80,743
Quantity of seed cotton, lb.	17,718,306
Lint produced, lb.	5,561,338
Number of bales of lint	10,974
Seed used for planting, lb.	2,235,058
Seed transferred to oil mill, lb.	8,880,388

The total value of the crop, including by-products, was £335,308.

The season was a poor one as far as the cotton industry was concerned. Early in the season there was promise of a good crop; but, there being very little subsoil moisture, the crop suffered severely as a result of a hot, dry spell during March.

Marketing of the Crop.—The bulk of the crop was marketed in Australia, the quantity disposed of within the Commonwealth being 10,344 bales. A quantity of 530 bales was shipped to Liverpool, and a further 100 bales were sold to Japan.

The 1933 season's crop did not meet the requirements of the spinners, both in regard to quantity and quality, and authority was given by the Commonwealth Government for the importation of raw cotton free of duty. As a result of this, spinners imported between them 2,121 bales of cotton. In addition to this, another spinner was permitted to import cotton free of duty specifically for making cotton tweed yarns.

Importations of Seed.—In an endeavour to meet the requirements of the Australian spinners, a little over 6½ tons of seed of new varieties of big-bolled, high lint percentage, medium-stapled types of cotton were introduced. The new varieties of cotton seed imported were—

4 tons Cliett Superior,
2 tons Lone Star,
½ ton Ferguson 406, and
194 lb. New Boykin.

Unfortunately, the abnormally wet season in the cotton districts prevented the best results being obtained from the areas planted with the above varieties.

Payment to Growers.—Payment to growers for cotton delivered to the 1933 pool has now been finalised. The average payment made over the whole of the crop was 3·6d. per lb., the payment for the top grade being 3·85d. per lb. This return is a slight reduction on last year's average price of 3·8d. per lb.

Administrative Expenses. — The working expenses per lb. of seed cotton were the lowest on record, being ·575d. This includes charges of every kind incurred in the handling, marketing, and ginning of the crop, and also includes depreciation and interest on the overdraft necessary to make advances to growers, but not interest on debentures covering the purchase of the ginneries.

By-products.—In addition to the ginning of the cotton, the Board engaged in the manufacture of by-products which are principally recovered from the cotton seed. Particulars of the seed treated in the oil mill and the by-products obtained therefrom are as follows:—

	Seed received. lb.	Seed treated. lb.
Queensland	9,392,168	5,090,800
East African (stocks held over from previous year)		4,218,856
		9,309,656

	Manufactured. lb.
Cake	4,131,850
Cake No. 2	224,200
Meal	538,325
Meal No. 2	984,400
Bran	300,450
Cubes	467,910
Linters	220,935
Crude oil	1,235,024
Refined oil	1,253,646
Deodorised oil	464,778
Acid oil	73,930

During the period under review, 1,232 tons of cotton-seed cake were exported overseas, the principal markets being Liverpool, London, and Avonmouth.

1934 *Season.*—The record production of cotton up to the present season was 11,957 bales, this being the outturn from the crop of the 1925 season. The 1934 season, however, has created a new record, the total production up to the 30th June being 12,929 bales. It is estimated that the final outturn of raw cotton will not be less than 17,000 bales.

First advance payments are being made to growers as soon as the cotton is received at the ginnery, and these payments vary from 2·6d. per lb. to 1·5d., according to grade and staple class. The first advance payment includes the Commonwealth bounty.

EGG BOARD.

Personnel of the Board to 31st December, 1934.—Messrs. R. B. Corbett (chairman), A. A. Cousner, T. Hallick, A. McLauchlan, W. T. Hughes, and E. Graham (Director of Marketing).

During the year growers were given an opportunity of taking a vote on the question of the continuance or otherwise of the operations of the pool, but as no petition for a ballot was received, the pool was extended for a period of five years—from 1st January, 1934, to 31st December, 1938.

Supplies of eggs to the Board and its agents during the year under review exceeded by 7 per cent. the figures for the previous twelve months. The Southern States have also reported that increased quantities of eggs have been handled by them during the year. With an increase in production throughout the Commonwealth, the average net returns to growers were less than last year, consequent on lower market values ruling both in Australia and the United Kingdom.

For the year ended 30th June, 1934, 48,616 cases (30 dozen each) of eggs were exported to Great Britain, an increase of 5,235 cases on last year's exports. The average gross price received, plus exchange and rebate of duty on packing materials used, was 1·31d. per dozen less than the previous year, although savings were effected in ocean freights and insurance.

Splendid reports were received from many sources concerning the quality and attractive appearance of the Board's various packs, which ranged from 13¼ lb. to 18 lb. per long hundred (10 dozen eggs). Every egg which is delivered to the Board is tested and graded to ensure satisfaction to purchasers.

In September, 1933, the Board made a distribution of surplus funds to growers at the rate of one-third of a penny per dozen on all eggs delivered during the period July, 1932, to June, 1933. It is anticipated that a further distribution will be made about October or November of the current year, when an amount of over £10,000 will be distributed.

Apart from its marketing operations, the Board has interested itself in many matters of importance to the poultry industry. It has taken an active part in the work of the Egg Producers' Council, an organisation comprised of the chief egg interests and egg exporters in the various States. It is hoped that through this organisation control of surplus production and co-operation with regard to overseas exportation and the acquirement of the necessary packing material will be accomplished.

The following is a summary of the Board's chief trading transactions during the year ended 30th June, 1934, showing the comparative increase or decrease that has taken place during the year:—

		Increase on 1932-33.
	Dozen.	Per cent.
Quantity of eggs received at packing floors of the Board	2,824,925	9
Quantity of eggs received by Board's authorised agents	1,313,478	3
Surplus stocks transferred by agents to Board's floor	612,716	14
Eggs cold-stored	170,670	2
Eggs converted into pulp	75,090 = 87,360 lb.	36
	Dozen.	Per cent.
Eggs exported overseas	1,458,480	12
		Decrease on 1932-33.
Eggs sent to Southern markets	286,170	20

THE FRUIT INDUSTRY.

The provisions of "*The Fruit Marketing Organisation Acts*, 1923 *to* 1930," have applied to the fruit industry throughout the year, and the Committee of Direction of Fruit Marketing has continued to function. The following particulars indicate the nature and volume of work performed by that body which is constituted under the abovenamed Acts:—

QUANTITIES OF BANANAS AND PINEAPPLES HANDLED BY THE COMMITTEE OF DIRECTION OF FRUIT MARKETING FOR TWELVE MONTHS ENDED 30TH JUNE, 1934.

Bananas.

Southern Consignments to—	Cases.
Melbourne	293,836
Sydney	46,822
Other Southern places	4,922
Interstate total	345,580
Brisbane Market	47,348
	392,928
Railings outside C.O.D.—The Queensland production must be increased by the production of the district from Nerang to the Border, which is mostly railed interstate via Murwillumbah, and of which the C.O.D. has no specific record, viz.	52,000 approx.
Total	444,928

Bunch Bananas.

	Bunches.
Total quantity marketed in Brisbane	609,538
Of which the C.O.D. handled	135,089 = 22 per cent.

The average price realised by the Committee of Direction during the above period for bunch bananas was 3·45d., the average quantity per bunch being 7 dozen and 5. The average price realised for cased bananas was 9s. 5d.

The approximate value of Brisbane consignments on the above average is:—

	£
Bunches	65,927
Cases	22,229
	£88,156

Pineapples.

	Cases.	Cases.
Southern Consignments to—		
Melbourne	135,427	
Sydney	164,699	
Other Southern places	7,449	
Interstate total		307,575
Queensland sales (approx.)		223,664
Factory Consignments—		
Winter Pack, 1933	155,389	
Summer Pack, 1934	153,438	
		308,827
Grand total		840,066

FACTORY ACTIVITIES.

	Cases.	Tons.	Tons.
STANTHORPE FRUITS.			
Season: December to May—			
Apples		95	
Peaches		24	
Plums		327	
Apricots		14	
Quinces		24	
Tomatoes		69	
			553
CITRUS FRUITS.			
Season: April to October—			
Citrons		13	
Sevilles		120	
Lisbon Lemons		69	
Bush Lemons		11	
Grape Fruit		12	
Sweet Oranges		56	
			281
FIGS.			
Season: January to March		64	
PAPAWS.			
Season: May to January		63	
PASSION FRUIT.			
Seasons: May to November and December to February		77	
STRAWBERRIES.			
Season: July to December		62	
TOMATOES.			
Metropolitan Crop: June to December		181	
PINEAPPLES.			
Winter Crop, 1933	155,389		
Summer Crop, 1934	153,438		
	308,827	(approx.)	8,347
A case contains 60 lb. net weight of fruit, equals 37 cases per ton, approximately.			
Total Tonnage			9,628

SUMMARY OF INTERSTATE TRANSPORT.

The following number of packages of fruit and vegetables have been forwarded by Committee of Direction fruit train specials and by steamer to the Southern markets for the period of twelve months ended 30th June, 1934:—

To—	By C.O.D. Fruit Train Specials.	By Steamer.	Total.
Victoria	496,828	4,476	501,304
New South Wales	587,835	21,563	609,398
Total	1,084,663	26,039	1,110,702

REFUNDS MADE TO GROWERS UNDER VARIOUS SYSTEMS OF FINANCE DURING THE TWELVE MONTHS ENDED 30TH JUNE, 1934.

Banana Revolving Fund.

Payments were completed in December, 1934, to all growers of bananas who consigned to the Southern States during the year 1928, the refund being at the rate of 1½d. per case on bananas forwarded by the Committee of Direction fruit train specials. The amount represented by this payment was £4,420 19s.

The total amount disbursed by this fund to consignors of bananas to Southern markets for the years 1924 to 1928, inclusive, is £17,988 7s. 11d.

Pineapple Consignors' Revolving Fund.

The pineapple growers agreed to increase the capital reserve of this fund from £2,500 to £8,000, and to increase the rate of repayment from ¾d. to 1d. per case.

In November, 1933, an amount of £792 8s. 11d. was disbursed to pineapple growers under this fund, representing a payment of ¼d. per case to the 1924 and 1925 consignors of pineapples to the Southern States by Committee of Direction fruit train specials, who had already received payment at the rate of ¾d. per case, and a payment of 1d. per case to the 1926 consignors.

The total amount disbursed from this fund to consignors of pineapples to Southern markets for the years 1924 to 1926, inclusive, is £1,525 1s. 6d.

Pineapple Cannery Suppliers' Revolving Fund.

In 1933, the cannery suppliers section of the pineapple industry established a revolving fund with a capital of £12,000, by 6d. per case being withheld from the monthly payments for pineapples supplied to cannery. The fund revolves by the repayment of 6d. per case twelve months later. An amount of £5,741 2s. 7d., representing payments retained from the summer crop of 1933, has now been returned to growers with their 1934 payments.

Rebate to Cased Bananas Suppliers to Committee of Direction.

Suppliers of cased bananas to the Committee of Direction floor for the quarter January to March were rebated proportionately a percentage of the commission profits. The amount so rebated was £62 15s. 9d.

GENERAL MATTERS.

Banana Section.

(*a*) *Brisbane*.—The past year has again proved the success of the scientific method of ripening bananas. During the year it was found necessary to increase the capacity of the plant by the erection of seven new rooms. The original plant consisted of fifteen rooms with a weekly capacity of 1,600 cases. The plant at present comprises twenty-two rooms with a weekly capacity of 2,500 cases.

The value of the process has been further demonstrated by the fact that a proprietary company has erected a plant consisting of seven rooms with a capacity of 700 cases. This plant is operated on exactly the same principle as the Committee of Direction plant. There is thus ample provision to meet the steadily growing trade in cased bananas on the Brisbane market.

Supplies throughout the year have been heavy, and prices have been at times very depressed. But for the operation of the Committee of Direction on the selling floor, there would have been periods when there would have been no bottom to the market, but the Committee of Direction nominated the lowest price at 4s., and growers were thus assured of this amount.

With the development of the cased banana trade, the Committee of Direction, in order to protect growers' interests, has been compelled to trade in manner similar to the Brisbane banana merchants—i.e., buy the green fruit and then sell the ripened fruit. This gave rise to dissatisfaction amongst some growers, who considered that the growers should be returned the price secured for the ripe fruit, less charges. As a result of this dissatisfaction, one of the Banana Growers' Associations convened a conference which was representative of all banana-growers from North Queensland to the border. This was held in Brisbane in May last. After a full explanation the conference not only approved the Committee of Direction method of trading but requested an extension of such trading activities, if possible.

(*b*) *Sydney*.—Only light supplies of Queensland bananas have been marketed in Sydney, owing to this market being supplied to capacity with New South Wales fruit. The Committee of Direction ripening rooms, however, have been successfully operated, and this service is appreciated by the trade.

(*c*) *Melbourne*.—The agreement with the merchants and agents continued to work satisfactorily throughout the year. The Queensland banana has grown in popularity on the Melbourne market and is sought for country order trade, on account of its superior keeping and carrying qualities. This has lately been so apparent that Queensland growers have deemed it advisable to brand their cases "Queensland Grown."

The Committee is pleased to be able to report that it will soon be able to offer to the Melbourne trade the same modern scientific ripening facilities as obtain in Brisbane and Sydney. Repeated efforts have been made since 1929 by the Committee of Direction to secure a site on the Melbourne market for the ripening and sale of bananas, but without success. On the undertaking that the Committee of Direction will not engage in the selling of bananas, but merely in the ripening of the fruit, entirely suitable premises close to the market have been secured in which a ripening plant consisting of thirty-five rooms with a weekly capacity of 6,000 cases will be erected. Sufficient promises of support from the trade have been secured to ensure the initial success of the venture. Modern ripening facilities in Melbourne have been a long-felt want. The plant is especially valuable in the hot weather, as the temperature and humidity conditions of the ripening rooms can be controlled independently of outside weather conditions. During last summer, when Melbourne experienced a particularly severe heat wave, the losses to banana-growers through deterioration of fruit were disastrous, and would have been avoided in large measure had modern ripening facilities been available to the trade. This probably proved a decisive factor in the withholding of opposition on the part of the Melbourne trade to the Committee of Direction establishing modern ripening rooms there. It is expected that portion of the rooms will be ready for operation on the 1st October next.

Pineapple Section.

Census.—Towards the end of 1933 the Committee of Direction took a census of the pineapple industry, which disclosed that a big increase in bearing acreage could be expected in 1935 and 1936, with a correspondingly big increase in production; 1933 proved to be the biggest production year experienced in the industry, the crop marketed being 102,989 cases in excess of the previous year (calendar year), and the number of cases processed by the canneries being 88,976 in excess of the previous year.

Canned Pineapple Export.—Owing to the large stocks of canned pineapple held on the Australian market, practically the whole of the crop was processed for overseas markets. To assist in overseas sales, the Committee was again successful in securing a grant of £20,000 from the Fruit Industry Sugar Concession Committee. In view of the difficult stock position, both in Australia and overseas, the growers as bona fides of their wish to put their industry in order, agreed to forego 6d. per case of their cannery payments, which should be used to create a fund to supplement the grant from the Fruit Industry Sugar Concession Committee should overseas sales result in a greater loss than £20,000, the fund to be drawn on in the same manner as the sugar industry grant and only should the £20,000 be exhausted. Fortunately, it is not anticipated that there will be any call on this fund, and with the finalisation of the 1934 winter pack growers will probably receive the amount withheld, as a deferred payment. The voluntary creation of the fund by the growers, however, ensured the absorption by the canner of all fruit of canning size.

Sales on the English market have been entirely satisfactory. The Canadian market was, however, curtailed by the loss of preference in duty over the cheap Singapore article. Strenuous efforts have been made to secure from Canada free entry for Australian canned pineapples, and it is still hoped that eventually the result will be satisfactory. Prior to the Ottawa Agreement, when Singapore was placed on the same tariff level as Australia, Australian canned pineapple was being supplied to the extent of about 20 per cent. of Canada's requirements. A restoration of the concession in duty would mean a big extension in the Canadian market for Queensland canned pineapple.

New Zealand Market.—The reopening of the New Zealand market to Queensland pineapples was greatly appreciated by the industry, and the trade is now again well established. Queensland growers have been working hard to ensure the New Zealand market being confined to direct Queensland trade, by getting the regulation enforced prescribing that the certificate accompanying the consignment must be signed in the State of origin. Growers consigning direct send specially picked and packed fruit, and they are afraid that the reputation of the fruit might be impaired by the consignments sent by agents on the Sydney market, such fruit having been picked and packed for interstate trade only, and which, therefore, could not arrive in such good order and condition as the direct consignments picked and packed for long distance transport.

DECIDUOUS SECTION.

Production.—The crop of deciduous fruits proved to be not so heavy as that of the previous season, the total tonnage carried by the Committee of Direction fruit trains to the Brisbane market being 12,639 tons as against 15,301 tons the previous season. The decrease in production was due solely to seasonal conditions, as the census taken by the Committee of Direction in October-November, 1933, showed a big increase in acreage of all classes of fruit, particularly in apples and plums.

Apples.—In an endeavour to stabilise the local market, the growers adopted a scheme of voluntary export. Under the scheme a levy of 1d. per case was imposed on all apples marketed from the district and from the fund created by the levy a bonus of 1s. per case was paid to every grower who sent apples overseas "on consignment." As a further assistance to growers exporting, an advance of 4s. per case on consignments sent via Brisbane and 3s. per case on consignments sent via Sydney was made at the time of railing from the district. This advance was deducted from the grower's overseas realisations to hand some two-three months later. A total of 46,027 cases of apples was exported from the district during the season, representing an increase of 14,256 cases on the quantity exported last season. £1,030 has already been distributed in bonuses from the export fund, and at a conference of Stanthorpe growers to be held in the immediate future a recommendation that growers who consigned overseas be guaranteed 5s. per case will probably be adopted. This will mean a further call on the export fund, but it will ensure growers, who took the risk of export in order to stabilise the local market, receiving at least local parity for sales which did not realise this figure overseas.

Hail Relief.—The district again adopted a system of hail relief. Fortunately, the losses through hail were not nearly so severe as during the previous season, and calls amounting to £203 5s. 10d. only have been made on the fund.

TRADE IN GROWERS' REQUISITES.

This trade has grown considerably throughout the year. The trading list is a very wide one, but the principal goods supplied are fertilizers and spray materials. The Committee of Direction aims at giving growers requisites at the lowest possible price, and the rapid growth of this trade has demonstrated that the service is satisfactory and keenly appreciated by growers.

ADVERTISING.

From experience over a number of years the Committee of Direction has proved that with only a limited appropriation for advertising a poster campaign is by far the most effective. As a result, therefore, most of its advertising is conducted along these lines. The posters issued by the Committee of Direction over a number of years have proved exceedingly popular, requests being received for them long after they are out of print. The last five numbers, which have been produced by a colour photography process, have been pronounced by advertising authorities as the finest examples of poster work yet seen. In fact, an inquiry was received from America as to whether the banana poster was an Australian or Continental production.

Advertising has been undertaken throughout the year on behalf of various fruits, as follows:—

Pineapples, Citrus, and Papaws.

The advertising campaigns conducted for the various fruits have been greatly assisted by the willing co-operation of the Departments of Agriculture of Queensland, New South Wales, Victoria, and South Australia, which co-operation is keenly appreciated by the Committee of Direction. The educational pamphlet, usually issued as part of any advertising campaign, accompanies the poster, and this is generally read by the classes as a lesson. The Committee believes that the impression the child mind receives of the health value of fruit from this lesson and the poster is most valuable publicity which has an immediate and lasting effect.

HONEY BOARD.

Personnel of the Board to 8th March, 1936.—Messrs. O. N. Tanner (chairman), C. W. Edwards, H. E. Fagg, R. V. Woodrow, and E. Graham (Director of Marketing).

The term of the pool expired by effluxion of time on the 8th March, but on the matter being referred to a referendum of growers a majority were in favour of the extension of the operations for a further five years until the 8th March, 1939. This was given effect to. The Board election was held at the same time, and resulted in favour of Messrs. Tanner, Edwards, Fagg, and Woodrow; Mr. Tanner being again appointed chairman. With the exception of Mr. Woodrow, all were members of the previous Board.

In October, 1933, there was a glut on the local market of second-grade honey, and difficulty was experienced in disposing of same. The unloading in Queensland of lower-priced honey from the Southern States was responsible to a great extent for this state of affairs. Local packers and handlers found it difficult to compete, and did not buy from the Board in the quantities they might have, had the circumstances been in their favour. Taking these factors into consideration, together with an anticipated heavy and early flow in the following season, the Board reduced prices, but nevertheless sales were still slow. Consequently, enquiries were made through the Agent-General's Office into the possibilities of an export market to the United Kingdom. Small samples were forwarded at the same time. The prices offered, however, were not sufficient inducement to enter into the trade, and as a result no business eventuated. Moreover, the situation by that time regarding the prospects for the forthcoming season were altered considerably owing to the indications of a short crop through adverse weather conditions.

During the year just ended the Board sold 11,256 tins (675,360 lb.) of honey, the prices realised being from 2d. to 5d. per lb. Honey in bottles, small tins, and sections comprised fifty-four and eleven-twelfths dozen, and sold at from 2s. 6d. to 42s. a dozen. The prices received for 10,417 lb. of beeswax varied from 1s. 2½d. to 1s. 6d. per lb.

J. Jackson and Company, Proprietary, Limited, were reappointed the Board's agents for a further twelve months.

It was decided, as from the 1st April, to reimpose the general levy of 1½ per cent., which had been suspended from the 1st July, 1933, to 31st March of this year. The Board also withdrew the general exemption on direct sales by growers to local consumers and retail vendors. Individual applications will, however, be considered on their merits.

NORTHERN PIG BOARD.

Personnel of the Board to 31 December, 1934.—Messrs. D. Johnston (chairman), R. Campbell, F. W. Collard, J. E. Foxwell, A. A. Knudson, and E. Graham (Director of Marketing).

During the year ended 30th June, 1934, the Board handled 8,396 pigs, or 358 less than last year. Of the total number handled, 7,246 were classified as first grade, 795 second grade, 131 third grade, and 224 small goods. Twenty-eight pigs died in transit and were paid for from the insurance fund which has been established by the Board in order to cover claims for damages and losses in transit, and which is subscribed to by suppliers at the rate of 3d. per pig handled by the Board. Two hundred and sixty-five pigs were sold alive to butchers, and the balance were taken over by the North Queensland Co-operative Bacon Association, Limited, who act as agents for the Board.

The number of pigs sold to butchers alive shows a further decrease this year in these sales as compared with the previous year. This was not due to the lack of demand, but to the shortage of supplies.

The average price paid for first-grade baconers was 4·68d. per lb., which is slightly higher than the prices realised in Southern Queensland.

The total amounts distributed to farmers during each of the last five years for pigs supplied are as follows:—

	£	s.	d.
1929-30	33,747	12	2
1930-31	23,812	15	7
1931-32	20,297	2	2
1932-33	16,576	15	2
1933-34	17,473	16	7

The year's transactions of the Board show a net loss of £72 0s. 1d., as against last year's loss of £157 1s. 6d. The Board claim that the loss is mainly due to the low supplies of pigs restricting trade, and causing an increase in overhead costs.

PEANUT BOARD.

Personnel of the Board to 27th August, 1934.—Messrs. N. J. Christiansen (chairman), A. G. Whiting, N. A. Nielsen, C. F. Adermann, and E. Graham (Director of Marketing).

Messrs. Pedersen's and Nielsen's term of office expired on the 27th August, 1933, and at the election held on the 23rd of the same month Mr. Nielsen was returned unopposed and Mr. Adermann defeated Mr. Pedersen by two votes. At the first meeting of the new Board Mr. Christiansen was recommended for appointment as chairman, and this was confirmed by the Minister.

The Board's application to the Commonwealth Government for permission to import Spanish kernels, owing to the shortage in the 1933 season, was approved to the extent of 350 tons of nuts. These were admitted at a reduced rate of duty and passed on by the Board to its customers at landed cost. In December, however, the Commonwealth authorities lifted the embargo on the importation of peanuts—a matter which caused great concern to the Board, because growers had planted heavily for the 1934 season with the expectation that they would continue to have the protection of the embargo afforded them. In order that the growers might be enabled to compete with the cheaper imported nuts-in-shell and obtain a fair return, the Board made representations to the Commonwealth Government to reconsider its decision, but to no avail. Application was then made to the Tariff Board for an increase of duty on nuts-in-shell by 2d. per lb. The appeal was heard in Sydney and Melbourne in March, but no decision has been given up to the present.

In March the Board dispensed with the services of its manager and secretary, and the accountant was appointed acting manager. Applications were called for a successor and considered at the June meeting, when the accountant (Mr. J. Nesbitt), was selected from numerous applicants.

The 1932 season was finalised in August, 1933, the final payment being ⅜d. per lb. The total payments to growers amounted to £8,332 17s. 10d.

1933 Season.—The total quantity of nuts received was—

	Tons.
Virginian Bunch	997.1
Spanish	199.6
Valencia	7.6
Total	1,204.3

The first payment to growers totalled £24,607 8s. 1d., less the ¼d. lb. levy, amounting to £2,811 3s. 11d., thus making the net payments to growers £21,796 4s. 2d. It is not likely that there will be any further payments on this crop, which should be finalised within the next few months.

In November the Board's Rockhampton depot was destroyed by fire, resulting in a total destruction of stocks of peanuts on hand there at the time. As the contents of the building were covered by insurance, full compensation was received.

1934 Season.—Plantings for this season were heavy, the estimate being 10,000 acres, which is the second-largest planting in the history of the industry. Seasonal conditions also were good, and a heavy crop resulted. Receivals to date of this report at Kingaroy and Atherton are—

	Tons.
Virginian Bunch	916.5
Spanish	891.2
Valencia	7.5
Total	1,815.2

It is estimated by the Board that another 1,300 to 1,400 tons are still in the fields.

As several of the growers in Central Queensland desired to market their crops this season, independent of the Board, through the medium of their own co-operative association, a depot was not established at Rockhampton this year by the Board. It is to be regretted that all peanuts produced in Queensland are not marketed through the medium of one growers' organisation, gaining thereby the benefits of stabilised prices, for which the Board, since its inception, has striven and been able to maintain up to this year. Competition from this source, and on the part of some growers who took advantage of the Board's stabilising effects and the protection of section 92 of the constitution by making direct interstate sales at lower prices, has had the effect of disturbing the market. The Board's best customers have remained loyal to the pool, and refused to buy direct from individual growers, with the result that the market has not dropped to any great extent, although the Board's sales have been slow.

It is to be hoped that the ensuing year will bring forth a better feeling between all growers, so that they will be able to handle the problems of the industry as one body and in the true spirit of co-operation.

The Board adopted a new grading system for Virginian Bunch nuts received during the 1934 season whereby growers are being paid according to the actual avenue through which their peanuts will be sold. The system in operation up to this season provided for seven grades, but under the new standards there are only three—namely, A grade (embracing nuts for the nut-in-shell trade), B grade (the kernel), and C (the oil trades).

Harrisons, Ramsay, Proprietary, Limited, were reappointed agents for a further twelve months, and finance was arranged for 1934 season with the Commonwealth Bank. The scale of payments of the first advance, exclusive of the levy, has been decided on as follows:—

	lb. *d.*
Spanish and Valencia, A grade ..	1½
Virginian Bunch—	
A grade	2¾
B grade	1
Oil	¼

The total payments to growers to date by way of a first advance amounts to £29,940 7s. 5d., excluding £4,235 9s. 1d. deducted in payment of the levy of ¼d. per lb. instituted in connection with the repayment of the amount of the loan obtained for the purpose of construction of silos for storage of peanuts.

PLYWOOD AND VENEER BOARD.

Personnel of the Board to 2nd May, 1935.—Messrs. J. F. Brett (chairman), G. A. Duffy, R. H. Bentley, G. Brown, J. E. Christoe, J. W. Jackson, W. L. Johnson, G. W. Nutting, C. R. Paterson, P. S. Reid, R. J. Donaldson, and A. E. Gibson (Deputy for Director of Marketing).

On the 3rd May, 1934, an Order in Council was issued whereby plywood and veneer produced for sale in that portion of the State south of the twenty-third degree of south latitude for a period of one year were declared to be commodities under the Primary Producers' Organisation and Marketing Acts.

There are ten elected representatives of the growers on the board, and persons who are deemed to be growers are those persons who own plywood and veneer plant and have produced plywood and veneer for sale.

Satisfactory progress has been made to date, but owing to the short period for which the Board has been functioning—namely, less than two months—it is impracticable to submit a report on the Board's activities.

WHEAT BOARD.

Personnel of the Board to 31st August, 1934.—Messrs. E. A. Thomas (chairman), J. J. Booth, W. J. Brimblecombe, T. W. McIntyre, and E. Graham (Director of Marketing).

The Board election in August, 1933, resulted in the appointment of Messrs. Booth, Brimblecombe, McIntyre, and Thomas, with the latter as chairman.

1932-33 Season.—The 1932-33 season's receivals totalled 2,162,423 bushels, of which 2,051,258 were classified as milling wheat and 111,165 as feed. The weight loss was 36,933 bushels. The season's operations were concluded on the 17th April, 38,475 bushels of feed wheat on hand at this date being taken over by the 1933-34 pool. Payments to growers were as follows:—

	Per bushel. *s. d.*
No. 1 Milling (Q1) ..	3 1
No. 2 Milling (Q2) ..	3 0 or 2 11
No. 3 Milling (Q2A) ..	2 10 or 2 9
F1A and F1 Feed	2 4
F2 Feed	2 1

The Board's expenses for the season in question amounted to £41,319 17s. 10d., equivalent to 4·585d. per bushel.

1933-34 Season.—As the period for which the pool was gazetted did not permit of its functioning after the cessation of the 1932-33 season's operations, a proclamation was issued last December extending the term for a further five years.

Growers were, at the same time, given the opportunity of petitioning for a ballot to be held on the question. A petition was received, but fell short of the required number of signatures, even though, at the request of a number of growers, a further two weeks beyond the primary date for its receipt were allowed.

Favourable rains in the early stages of the 1933-34 season were responsible for the prospects of a record yield, but excessive wet weather during the harvesting period resulted in anticipations not being realised. Receivals into the pool totalled 3,945,104 bushels of wheat, comprising 3,521,391 bushels of milling and 432,712 bushels feed.

At a conference of the Board and milling interests held on 7th June, an agreement was arrived at whereby the millers undertook to purchase, by the 2nd of September, 1,180,000 bushels of milling wheat in the proportion of 19 per cent. each of Q1 and Q2A and 62 per cent. Q2. The mills were given the right to increase this quantity during the period in question to 2,360,000 bushels. Provision was also made that any mill could, on or before the 31st August, arrange for fresh quotas for the period from 3rd September to 30th November next, the terms and conditions to remain unaltered.

The price basis agreed on in respect to Q2 was 1½d. per bushel on rails at sending stations over the price for parcels on sellers' values of f.a.q. bagged wheat in trucks at Darling Harbour. A premium of 1½d. per bushel was to be added for Q1 and a dockage of 1½d. on Q2A wheat. This basis was to apply to the mills in Brisbane and Maryborough, but to all other mills the price was to be 4d. per bushel on rails at sending stations over Darling Harbour.

A rebate was to be allowed to the "Downs mills" on flour (or wheatmeal for domestic purposes) sold at Ipswich, Brisbane, and intervening stations, and all places north or south of Brisbane.

A special rebate was also to be made to all Queensland mills on similar sales at Rockhampton and north therefrom. If the mills so desired an alternative rebate at a slightly increased rate could be substituted on sales to Townsville and beyond.

During the year the amount of wheat exported overseas was 67,308 bushels, spread over four shipments, and the respective prices realised per quarter for the first three consignments were, in English currency, 18s. 9d., 19s. 3d., and 19s. 9d. Details for the last shipment are not available to date of this report.

Arrangements were again made with the Rural Credits Department of the Commonwealth Bank for finance for the 1933-34 season's crop, thus enabling the payment to growers, on delivery of their wheat to the Board, of a first advance of 2s. per bushel on standard quality No. 1 milling wheat, with premiums and dockages on other grades. The bank also advanced to the Board 3d. per bushel for expenses. To those growers whose crops sustained hail damage a first advance has been made on the same basis as outlined above, less 9d. per bushel, considered to be the equivalent of the costs incidental to harvesting and which would have been incurred had no damage been sustained. Hail compensation was payable on 145,062 bushels.

GENERAL.

The number of products to which the principle of collective marketing has been applied, in accordance with the provisions of the Primary Producers' Organisation and Marketing Acts and other legislative measures having a similar objective, has been increased by the addition of the Plywood and Veneer Pool, bringing the total of Marketing Boards up to fifteen in number.

Particulars of the nature of the commodities as organised under the Acts, together with the volume of their production and value, are given in summarised form for the year ended 30th June, 1933, and are as follows:—

QUANTITY AND VALUE OF PRODUCTS DISPOSED OF BY MARKETING ORGANISATIONS FOR THE YEAR ENDED 30TH JUNE, 1933.

Product.	Quantity.	Value.
		£
Arrowroot	582 tons	19,800
Atherton Maize ..	17,437 ,,	158,076
Barley	77,360 bush.	13,664
Broom Millet ..	139 tons	5,125
Butter	99,989,288 lb.	4,363,155
Canary Seed	1,219 tons	30,892
Cheese	12,056,089 lb.	356,416
Cotton	17,718,306 lb.	335,308*
Eggs	3,863,882 doz.	166,095
Fruit	..	1,500,000
Honey	384,360 lb.	8,616
Northern Pigs ..	8,754 pigs	16,576
Peanuts	1,204 tons	43,000
Sugar	514,196 ,,	9,500,000
Wheat	2,162,423 bush.	357,644
		£16,874,367

* Including by-products.

During the year the life of several of the Pool Boards has been extended for a further period of years, and no pool as primarily constituted has ceased to function.

No primary product can claim to have made any material advance in value within the year, but, generally, values have been comparatively uniform, and the marked downward tendency of the markets universally experienced in the former year has been arrested and a tone of increased stability in prices has been established.

Pool Boards have not been neglectful of the benefits to be gained by marketing the commodities in a form that meets with the approval of purchasers, and merchants have not failed to appreciate the advantages of being placed in the position of being able to obtain products through the channels of marketing organisations. The fact that Pool Boards arrange for the classification of the commodity into its relative grades of quality prior to sale is but one of the many advantages that collective marketing makes possible.

It is necessary only to instance the difficulties that would be experienced in the marketing of the crop of cotton in the absence of an organised marketing system, and to realise the chaotic position that would arise by farmers individually attempting to make sales of the raw product in the form that it leaves the farm.

There are numerous commodities that might be marketed to greater advantage in a processed or changed form, such, for example, as the conversion of barley into malt, wheat into flour, maize in the form of starch or glucose, &c.

Several of the Pool Boards are giving consideration to these phases of activity as affecting the sale of raw products in which they are concerned.

Undoubtedly this is a field worthy of investigation by Pool Boards handling primary products that are suitable for and responsive to such treatment.

An additional field equally worthy of the earnest consideration and investigation by practically all Pool Boards is the matter of the economics of the particular primary industry in which the Board is specially interested. One of the main functions of the Pool Boards is to effect the sale of the commodity at a figure that is satisfactory to the producer and reasonable in price to the consumer. The adjustment of prices in conformity with these intricate and exacting conditions is not possible without a careful study being made of the economics of the primary industries. In this age of keen competition for markets, it becomes an essential to success that all avenues giving promise of a useful contribution should be exploited and taken into account.

Several of the Pool Boards have given some consideration to this matter along the lines indicated, but the matter is of such outstanding importance and urgency as to merit increased attention being devoted to it in the immediate future.

Government Representation on Commodity Boards.

The practice of arranging for officers of this Department possessing special knowledge of the particular products that have been made the subject of a pool to act as Government representatives on the various boards has again been followed throughout the year with satisfactory results. I wish to record the interest the officers concerned have taken in this particular work and to thank them for the services they have rendered in this connection.

E. GRAHAM,

Under Secretary for Agriculture and Stock
and Director of Marketing.

REPORT OF THE REGISTRAR-GENERAL ON AGRICULTURAL PRODUCTION FOR THE YEAR 1933.

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DAIRYING.

Table No. I.—Return Showing the Progress of the Dairying Industry since the Year 1909.

Year.	Dairying Establishments, Exclusive of Factories.	Dairy Cows.				—	Production of Butter.	Production of Cheese.
		In Milk.	Dry.	Heifers within three months of milking.	Total.			
							Lb.	Lb.
						1890	*2,000,000	*170,240
						1895	3,719,523	1,841,799
						1900	8,680,389	1,984,705
1909	15,279	228,497	105,342	..	333,839	1905	20,319,976	2,682,089
1910	16,079	262,788	102,656	..	365,444	1910	31,258,333	4,146,661
1911	16,225	237,997	119,098	..	357,095	1911	27,858,535	3,718,257
1912	16,579	267,847	107,813	..	375,660	1912	30,307,339	3,947,615
1913	17,866	285,403	106,036	..	391,439	1913	35,199,387	5,395,050
1914	18,029	288,334	98,977	..	387,311	1914	37,230,240	7,931,869
1915	17,876	218,511	116,732	..	335,243	1915	25,456,714	4,383,410
1916	18,410	247,855	95,456	..	343,311	1916	28,967,279	8,495,825
1917	19,404	303,133	96,375	..	399,508	1917	38,930,690	11,142,114
1918	19,313	255,039	126,466	..	381,505	1918	32,371,575	8,636,700
1919	18,952	211,331	161,815	..	373,146	1919	26,213,514	8,296,318
1920	20,457	335,026	113,608	..	448,634	1920	40,751,373	11,512,262
1921	21,695	423,251	130,957	..	554,208	1921	60,923,194	15,200,527
1922	21,931	418,351	145,332	..	563,683	1922	53,785,599	10,560,316
1923	22,019	357,203	155,326	..	512,529	1923	40,659,634	7,221,355
1924	22,599	433,531	151,355	..	584,886	1924	58,187,954	11,093,886
1925	22,581	463,436	147,900	..	611,426	1925	70,748,646	14,242,721
1926	22,451	397,606	157,913	55,708	611,227	1926	50,991,985	8,740,355
1927	22,547	436,337	139,970	69,009	645,316	1927	62,552,917	12,233,520
1928	22,457	492,405	144,562	33,838	670,805	1928	73,820,292	15,047,825
1929	22,763	507,100	142,477	31,000	680,577	1929	77,483,845	13,229,337
1930	23,270	546,643	147,385	30,295	724,323	1930	90,377,751	14,249,173
1931	24,016	590,656	152,668	31,977	775,301	1931	100,565,158	12,261,457
1932	24,591	586,995	173,557	32,391	792,943	1932	96,317,201	11,157,781
1933	25,363	673,544	164,978	38,887	877,409	1933	114,032,603	13,941,728

Value of Dairying Production 1932-33 .. £5,309,000.

* Estimated.

Table No. II.—Return Showing Details of the Principal Dairying Divisions for the Year 1933.

District.	Total Milk Obtained.	How Utilised.						
		For Butter on Farms.	For Cheese on Farms.	For Domestic Purposes by Producer.	Separated for Sale.	Sold for Consumption as Milk.	Sold to Condensed Milk Factories.	Sold to Cheese Factories.
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.
Moreton	80,656,493	2,329,395	50	1,933,730	70,388,060	5,731,440	...	273,818
Wide Bay	76,033,364	2,278,584	3,900	1,517,426	71,241,055	543,641	...	448,758
Port Curtis	18,238,773	659,931	...	418,528	16,670,834	489,480	...	...
Rockingham	11,048,859	215,738	...	378,709	9,806,954	286,191	...	361,267
Maranoa	2,903,870	92,689	...	52,139	2,691,570	67,472	...	...
Downs	67,234,375	1,431,652	...	1,293,941	51,316,252	359,101	...	12,833,429
Other Districts	3,239,513	404,300	...	679,410	1,597,053	558,750	...	...
Total, 1933	a 259,355,247	7,412,289	3,950	6,273,883	223,711,778	8,036,075	...	13,917,272
Total, 1932	b 216,666,245	6,505,264	4,250	5,878,986	185,587,461	7,582,941	...	11,107,343
Increase, 1933	42,689,002	907,025	...	394,897	38,124,317	453,134	...	2,809,929
Decrease, 1933	...	...	300	...	...	...	...	...

District.	Establishments.			Dairy Cattle.		Butter Made.			Cheese Made.		
	Dairying.	Butter Factories.	Cheese Factories.	In Milk.	Dry.	At Factories.	By Farmers.	Total.	At Factories.	By Farmers.	Total.
	No.	No.	No.	No.	No.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
Moreton	8,402	17	1	240,445	47,214	34,151,261	1,093,118	35,244,379	270,902	40	270,942
Wide Bay	6,404	13	2	208,722	48,590	33,659,011	1,097,687	34,756,698	417,377	3,900	421,277
Port Curtis	1,706	5	...	51,586	19,008	8,696,378	280,738	8,977,116	...	...	...
Rockingham	1,468	6	2	22,531	8,897	5,095,621	102,262	5,197,883	344,031	...	344,031
Maranoa	286	1	...	7,859	2,584	1,144,160	40,135	1,184,295	...	...	...
Downs	5,075	12	57	130,279	29,990	27,197,997	665,609	27,863,606	12,905,478	...	12,905,478
Other Districts	2,022	2	...	12,122	8,695	663,272	145,354	808,626	...	...	...
Total, 1933	25,363	56	62	*673,544	164,978	110,607,700	3,424,903	114,032,603	13,937,788	3,940	13,941,728
Total, 1932	24,591	56	62	†586,995	173,557	93,312,321	3,004 880	96,317,201	11,153,825	3,956	11,157,781
Increase, 1933	772	...	...	86,549	...	17,295,379	420,023	17,715,402	2,783,963	...	2,783,947
Decrease, 1933	...	...	...	...	8,579	...	...	...	...	16	...

a 406,113 gallons of this were sent from the Moreton Division to New South Wales.

b 324,198 gallons of this were sent from the Moreton Division to New South Wales.

* Exclusive of 38,887 Heifers intended for milking.

† Exclusive of 32,391 Heifers intended for milking.

Table No. III.—Return showing Classification of Dairy Establishments (not Factories) according to Number of Dairy Cows (including Heifers intended for Milking).

District.	Under 5.	5 to 9.	10 to 14.	15 to 19.	20 to 29.	30 to 49.	50 to 99.	100 & over.	Total.
Moreton	1,004	336	563	741	1,660	2,268	1,541	289	8,402
Wide Bay	676	359	225	275	745	1,989	1,830	305	6,404
Port Curtis	111	59	65	94	272	544	417	144	1,706
Edgecumbe	1,039	388	136	68	88	78	61	18	1,876
Rockingham	675	119	46	26	91	242	245	24	1,468
York Peninsula	41	6	2	1	2	5	11	4	72
Carpentaria	2	..	2	..	5	4	2	1	16
Central-Western	..	..	..	..	..	1	1	..	2
South-Western	4	4	4	1	4	3	1	..	21
Central	1	3	11	1	10	5	4	..	35
Maranoa	17	25	19	10	53	81	76	5	286
Downs	808	230	380	457	960	1,259	826	155	5,075
Totals State	4,378	1,529	1,453	1,674	3,890	6,479	5,015	945	25,363

Table No. IV.

RETURN SHOWING THE RESULTS OF THE DAIRYING INDUSTRY IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE DURING THE YEAR 1933.

Districts.	Total Milk Obtained.	HOW UTILISED.							ESTABLISHMENTS.			DAIRY CATTLE.			Average per Cow.	BUTTER MADE.			CHEESE MADE.		
		For Butter on Farms.	For Cheese on Farms.	For Domestic Purposes by Producer.	Separated for Sale.	Sold for Consumption as Milk.	Sold to Condensed Milk Factories.	Sold to Cheese Factories.	Dairying.	Butter Factories.	Cheese Factories.	In Milk.	Dry.	Heifers, &c.		At Factories.	By Farmers.	Total.	At Factories.	By Farmers.	Total.
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	No.	No.	No.	No.	No.	No.	Gall.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
Moreton.																					
Brisbane (A)	2,940,664	104,142	..	153,498	775,066	1,907,958	..	..	592	..	..	9,185	2,861	505	244	..	46,941	46,941	..	..	..
Brisbane (B)	1,058,130	41,863	..	70,180	90,730	855,357	..	..	191	..	..	3,074	1,030	182	258	..	16,950	16,956	..	..	..
Beaudesert	13,874,902	185,043	..	163,549	13,317,704	208,606	..	..	581	1	..	37,107	5,719	1,499	324	3,115,281	79,081	3,194,362	..	..	..
Caboolture	493,195	14,809	..	8,334	457,156	12,896	..	..	82	1	..	2,166	643	221	176	3,303,532	7,846	3,311,378	..	..	..
Cleveland	106,069	19,634	..	47,881	15,430	23,124	..	..	159	..	..	505	197	35	151	..	9,531	9,531	..	..	..
Crow's Nest	3,821,276	140,812	..	91,084	3,582,020	7,360	..	..	399	1	..	12,545	2,043	443	262	1,542,743	71,698	1,614,441	..	..	..
Dugandan	5,401,847	154,172	..	128,436	5,110,653	8,586	..	..	612	1	..	16,782	1,883	251	289	4,208,296	77,083	4,285,379	..	..	..
Esk	1,289,737	39,166	..	42,209	1,204,679	3,683	..	..	149	1	..	5,357	1,178	217	197	1,836,360	19,689	1,856,049	..	..	..
Gatton	3,590,999	153,762	..	125,293	3,290,108	18,336	..	3,500	541	2	..	10,406	2,972	205	268	2,665,327	78,226	2,743,553	3,159	..	3,159
Goodna	131,591	6,210	..	30,992	84,951	9,438	..	..	24	..	..	467	166	25	208	..	2,980	2,980	..	..	..
Harrisville	3,271,708	112,459	..	75,942	3,029,024	54,283	..	..	392	..	..	10,480	1,589	315	271	..	56,151	56,151	..	..	..
Ipswich	1,141,248	44,898	..	48,008	895,164	153,178	..	..	175	3	..	4,645	1,141	916	197	3,999,355	22,524	4,021,879	..	..	..
Kilcoy	1,596,760	56,296	..	34,484	1,456,794	49,186	..	..	142	..	..	6,806	1,713	297	187	..	24,670	24,670	..	..	..
Laidley	2,892,606	110,232	..	113,183	2,666,591	2,600	..	..	401	1	..	8,357	1,539	136	292	1,624,921	55,050	1,679,971	..	..	..
Logan	2,536,373	113,973	..	80,984	2,087,804	253,612	..	..	440	1	..	7,896	1,922	1,128	258	6,197,240	49,074	6,246,314	..	..	..
Lowood	2,126,904	58,860	..	70,252	1,966,629	31,163	..	..	291	1	..	6,894	890	323	273	419,099	29,430	448,529	..	..	..
Marburg	1,836,547	49,330	..	29,855	1,752,161	5,201	..	..	246	..	..	5,704	701	69	287	..	25,005	25,005	..	..	..
Maroochy	8,818,325	322,277	50	165,958	8,268,510	61,530	..	..	1,026	2	..	21,289	4,500	645	342	3,380,832	158,470	3,539,302	..	40	40
Redcliffe	3,184,227	57,433	..	61,916	1,452,173	1,612,705	..	..	321	1	..	10,448	2,335	198	249	284,524	28,444	312,968	..	..	..
Rosewood	3,016,323	81,836	..	65,761	2,768,169	100,557	..	..	337	..	..	10,294	1,438	153	257	..	41,418	41,418	..	..	..
Southport	5,641,976	183,100	..	94,608	5,000,841	93,109	..	270,318	373	..	1	17,741	3,574	2,196	265	..	55,423	55,423	267,743	..	267,743
Toogoolawah	3,490,479	78,841	..	53,613	3,347,680	10,345	..	..	294	..	..	10,969	2,759	611	254	..	38,956	38,956	..	..	..
Woodford	3,745,058	76,828	..	78,430	3,539,702	50,098	..	..	257	1	..	10,523	2,357	492	291	1,573,751	38,421	1,612,172	..	..	..
Wynnum	230,339	7,079	..	22,621	11,661	188,978	..	..	67	..	..	685	174	34	268	..	3,461	3,461	..	..	..
Oakey–Cooyar	1,502,513	58,520	..	34,142	1,409,701	150	..	..	124	..	..	4,450	915	172	280	..	27,506	27,506	..	..	..
Toowoomba–Helidon	2,916,697	57,820	..	42,517	2,806,959	9,401	..	..	186	..	..	5,670	975	1,683	439	..	29,084	29,084	..	..	..
Total Moreton	80,656,493	2,329,395	50	1,933,730	70,388,060	5,731,440	..	273,818	8,402	17	1	240,445	47,214	12,951	280	34,151,261	1,093,118	35,244,379	270,902	40	270,942
Wide Bay.																					
Biggenden	4,678,015	99,435	..	77,971	4,048,201	3,650	..	448,758	298	1	2	13,491	1,848	217	305	1,933,770	49,769	1,983,539	417,377	..	417,377
Bundaberg	2,989,144	283,042	..	188,938	2,367,718	149,446	..	..	782	1	..	10,278	3,401	607	218	1,337,525	142,767	1,480,292	..	..	..
Childers	393,725	28,707	..	55,257	301,471	8,290	..	..	174	..	..	1,812	602	301	163	..	13,771	13,771	..	..	..
Eidsvold	1,238,201	45,466	..	36,967	1,155,768	..	..	..	150	..	..	5,944	1,566	326	165	..	22,727	22,727	..	..	..
Gayndah	6,548,704	140,026	..	75,235	6,321,893	11,550	..	..	518	2	..	21,356	5,614	1,257	243	4,435,224	70,946	4,506,170	..	..	..
Gin Gin	683,423	97,404	..	37,802	545,527	2,690	..	..	261	..	..	4,070	1,385	262	125	..	40,799	40,799	..	..	..
Gympie	19,258,040	647,513	..	381,346	18,152,083	77,098	..	..	1,359	4	..	53,301	8,263	3,392	313	9,687,359	315,349	10,002,708	..	..	..
Kilkivan	1,608,766	40,259	..	30,639	1,537,868	..	..	..	117	..	..	5,196	1,581	117	237	..	19,982	19,987	..	..	..
Maryborough	2,489,495	184,047	..	84,404	2,054,437	166,607	..	..	473	1	..	7,182	2,773	889	250	769,470	83,065	852,535	..	..	..
Mount Perry	62,673	10,830	..	6,701	45,142	..	..	..	23	..	..	589	224	74	77	..	5,415	5,415	..	..	..
Nanango	11,790,223	300,839	..	173,835	11,283,882	31,667	..	..	862	2	..	31,348	8,166	1,968	298	6,795,929	140,614	6,936,543	..	..	..
Tiaro	2,688,967	101,840	3,900	68,426	2,508,528	6,273	..	..	302	..	..	11,899	2,858	363	182	..	50,733	50,733	..	3,900	3,900
Wienholt	21,603,988	299,176	..	299,905	20,918,537	86,370	..	..	1,085	2	..	42,256	10,309	595	411	8,699,734	141,745	8,841,479	..	..	..
Total Wide Bay	76,033,364	2,278,584	3,900	1,517,426	71,241,055	543,641	..	448,758	6,404	13	2	208,722	48,590	10,368	295	33,659,011	1,097,687	34,756,698	417,377	3,900	421,277
Port Curtis.																					
Banana	214,219	9,598	..	13,666	189,255	1,700	..	..	60	..	..	920	407	132	161	..	4,739	4,739	..	..	..
Gladstone	5,539,630	171,363	..	94,212	5,238,545	35,510	..	..	411	1	..	15,963	5,980	2,952	252	2,728,206	66,752	2,794,958	..	..	..
Monto	3,998,456	102,708	..	70,445	3,824,553	750	..	..	322	1	..	10,478	2,806	673	301	1,624,068	51,646	1,675,714	..	..	..
Mount Morgan	2,872,501	124,883	..	62,400	2,664,796	20,422	..	..	285	1	..	7,066	2,491	1,039	301	2,488,578	39,798	2,528,376	..	..	..
Rockhampton	5,597,932	245,899	..	174,750	4,747,685	429,598	..	..	619	2	..	17,039	7,248	1,673	230	1,855,526	116,345	1,971,871	..	..	..
St. Lawrence	16,035	5,480	..	3,055	6,000	1,500	..	..	9	..	..	120	76	21	82	..	1,458	1,458	..	..	..
Total Port Curtis	18,238,773	659,931	..	418,528	16,670,834	489,480	..	..	1.706	5	..	51,586	19,008	6,490	258	8,696,378	280,738	8,977,116	..	..	..

Table No. IV.—*continued.*

RETURN SHOWING THE RESULTS OF THE DAIRYING INDUSTRY IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE DURING THE YEAR 1933—*continued.*

Districts.	Total Milk Obtained.	HOW UTILISED.							ESTABLISHMENTS.			DAIRY CATTLE.			Average per Cow.	BUTTER MADE.			CHEESE MADE.		
		For Butter on Farms.	For Cheese on Farms.	For Domestic Purposes by Producer.	Separated for Sale.	Sold for Consumption as Milk.	Sold to Condensed Milk Factories.	Sold to Cheese Factories.	Dairying.	Butter Factories.	Cheese Factories.	In Milk.	Dry.	Heifers, &c.		At Factories.	By Farmers.	Total.	At Factories.	By Farmers.	Total.
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	No.	No.	No.	No.	No.	No.	Gall.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
Rockingham.																					
Atherton	8,600,960	131,566	..	108,376	7,909,287	90,464	..	361,267	484	4	2	16,430	5,301	1,290	396	4,603,246	65,706	4,668,952	344,031	..	344,031
Cairns	285,108	7,834	..	66,512	100,000	110,762	..	..	219	..	..	880	532	62	202	..	3,342	3,342	..	..	..
Cardwell	48,990	820	..	9,345	20,030	18 795	..	..	82	..	..	222	70	11	168	..	410	410	..	..	..
Chillagoe	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Herberton	921,811	47,992	..	29,419	832,150	12,250	..	..	108	1	..	2,600	708	182	279	430,253	19,541	449,794	..	..	..
Ingham	405,938	11,600	..	69,859	310,554	13,925	..	..	218	..	..	573	1,338	119	212	..	5,516	5,516	..	..	..
Innisfail	248,470	2,620	..	80,915	124,940	39,995	..	..	312	1	..	841	460	141	191	62,122	1,144	63,266	..	..	..
Mareeba	537,582	13,306	..	14,283	509,993	..	..	..	45	..	..	985	488	150	365	..	6,603	6,603	..	..	..
Total Rockingham	11,048,859	215,738	..	378,709	9,806,954	286,191	..	361,267	1,468	6	2	22,531	8,897	1,955	352	5,095,621	102,262	5,197,883	344,031	..	344,031
Maranoa.																					
Mitchell	36,773	1,570	..	1,635	33,568	..	..	..	7	..	..	153	51	11	180	..	712	712	..	..	..
Roma	2,798,223	86,583	..	46,607	2,598,293	66,740	..	..	260	1	..	7,296	2,364	156	290	1,144,160	37,180	1,181,340	..	..	..
Surat	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Yeulba	68,874	4,536	..	3,897	59,709	732	..	..	19	..	..	410	169	23	119	..	2,243	2,243	..	..	..
Total Maranoa ..	2,903,870	92,689	..	52,139	2,691,570	67,472	..	..	286	1	..	7,859	2,584	190	278	1,144,160	40,135	1,184,295	..	..	..
Downs.																					
Allora	3,050,970	..	..	206,390	2,640,730	..	..	203,850	294	1	..	5,889	914	17	448	1,640,142	..	1,640,142	..	..	..
Chinchilla	3,000,881	40,327	..	41,591	2,918,963	..	..	..	143	1	..	6,170	1,729	269	380	2,067,569	20,452	2,088,021	..	..	..
Clifton	5,121,651	159,306	..	107,957	3,794,554	4,600	..	1,055,234	490	1	7	9,444	1,531	234	467	1,748,208	71,286	1,819,494	1,196,411	..	1,196,411
Condamine	4,474,354	56,757	..	43,419	4,374,178	..	..	..	213	1	..	8,015	2,642	604	420	1,273,065	28,462	1,301,527	..	..	..
Dalby	11,399,842	172,181	..	113,845	10,248,159	30,594	..	835,063	522	1	5	22,964	5,889	1,325	395	4,463,159	76,480	4,539,639	681,293	..	681,293
Goondiwindi ..	325,311	7,664	..	8,450	169,357	19,840	..	120,000	28	1	1	625	182	12	403	253,343	3,832	257,175	108,953	..	108,953
Inglewood	1,062,555	39,221	..	30,509	1,566,901	6,032	..	419,892	131	..	1	4,119	831	109	417	..	17,124	17,124	234,695	..	234,695
Killarney	2,917,399	54,397	..	36,018	2,446,223	3,650	..	377,111	177	1	..	4,254	1,661	128	493	1,499,685	22,475	1,522,160	..	..	..
Oakey	13,913,273	231,699	..	189,937	9,854,668	538	..	3.636,431	797	2	18	26,970	5,990	909	422	5,593,754	111,077	5,704,831	4,528,302	..	4,528,302
Pittsworth	7,322,298	135,689	..	145,354	3,408,847	26,310	..	3,606,098	493	..	11	13,881	2,904	209	436	..	61,062	61,062	3,456,623	..	3,456,623
Stanthorpe	247,393	109,936	..	77,026	43,049	17,382	..	..	517	..	..	870	353	149	202	..	54,657	54,657	..	..	..
Texas	658,256	16,979	..	17,732	619,975	3,520	..	..	61	1	..	1,614	515	67	309	297,574	6,166	303,740	..	..	..
Toowoomba ..	6,204,501	190,610	..	131,314	3,677,183	177,360	..	2,028,034	591	1	10	13,011	2,216	448	407	5,159,878	94,296	5,254,174	2,055,490	..	2,055,490
Warwick	6,535,691	216,886	..	144,349	5,553,465	69,275	..	551,716	618	1	4	12,453	2,633	148	433	3,201,620	98,240	3,299,860	643,711	..	643,711
Total Downs ..	67,234,375	1,431,652	..	1,293,941	51,316,252	359,101	..	12,833,429	5,075	12	57	130,279	29,990	4,628	420	27,197,997	665,609	27,863,606	12,905,478	..	12,905,478
Other Districts ..	3,239,513	404,300	..	679,410	1,597,053	558,750	..	..	2,022	2	..	12,122	8,695	2,305	156	663,272	145,354	808,626	..	..	..
Grand Total 1933	*a*259,355,247	7,412,289	3,950	6,273,883	223,711,778	8,036,075	..	13,917,272	25,363	56	62	673,544	164,978	38,887	309	110,607,700	3,424,903	114,032,603	13,937,788	3,940	13,941,728
1932	*b*216,666,245	6,505,264	4,250	5,878,986	185,587,461	7,582,941	..	11,107,343	24,591	56	62	586,995	173,557	32,391	309	93,312,321	3,004,880	96,317,201	11,153,825	3,956	11,157,781
Increase, 1933 ..	42,689,002	907,025	..	394,897	38,124,317	453,134	..	2,809,929	772	..	..	86,549	..	6,496	..	17,295,379	420,023	17,715,402	2,783,963	..	2,783,947
Decrease, 1933 ..	..	..	300	..	..	..	..	..	..	..	..	..	8,579	..	..	..	..	..	..	16	..

(*a*) 406,113 gallons of this were sent from Moreton Division to New South Wales.

(*b*) 324,198 gallons of this were sent from Moreton Division to New South Wales.

Table No. V.—BUTTER, CHEESE, AND CONDENSED MILK.

RETURN SHOWING QUANTITY EXPORTED OVERSEA FOR FIVE YEARS (AUSTRALIAN PRODUCE ONLY).

Year.	Butter.			Cheese.			Condensed Milk.		
	Quantity Exported Oversea.	Value.	Value per lb.	Quantity Exported Oversea.	Value.	Value per lb.	Quantity Exported Oversea.	Value.	Value per lb.
	lb.	£	s. d.	lb.	£	s. d.	lb.	£	s. d.
1928–29 ..	45,008,530	3,180,298	1 4½	7,925,026	311,051	0 9½	2,028	100	0 11¾
1929–30 ..	46,782,074	2,866,517	1 2¾	2,897,481	112,877	0 9½	23,039	1,067	0 11
1930–31 ..	67,582,918	3,326,099	0 11¾	7,790,222	213,731	0 6½	..	..	..
1931–32 ..	72,307,146	3,385,342	0 11¼	4,461,896	117,481	0 6¼	..	..	..
1932–33 ..	76,544,872	2,883,817	0 9½	6,527,007	151,462	0 5½	..	..	..

Table No. VI.—CONDENSED MILK MANUFACTURED—RETURN FOR FIVE YEARS

	Lb.
1929	6,024,126
1930	776,652
1931	*Nil.*
1932	*Nil.*
1933	*Nil.*

POULTRY.

Table No. VII.—RETURN SHOWING THE NUMBERS OF POULTRY ON FARMS AND EGGS PRODUCED IN THE PRINCIPAL DISTRICTS OF THE STATE FOR THE YEAR 1933.

Petty Sessions District.	Fowls.	Ducks.	Geese.	Turkeys.	Other.	Eggs.	Total Poultry Sold or Killed for Food.		Value of Eggs Sold or Used.
	Number.	Number.	Number.	Number.	Number.	Dozen.	Number.	£	£
Allora	8,951	..	..	..	..	41,200	58	17	1,023
Atherton	21,818	631	10	111	9	82,879	6,803	864	4,290
Ayr	10,433	457	17	181	30	35,406	166	28	3,284
Beaudesert	16,722	473	136	336	2	92,793	5,303	436	2,613
Biggenden	8,810	48	13	13	..	51,045	6	1	2,575
Brisbane (A)	100,688	1,220	222	18	435	827,127	59,257	4,210	38,780
Brisbane (B)	67,039	1,022	15	..	11	588,179	30,922	2,699	27,457
Bundaberg	17,753	390	30	31	..	87,452	2,585	281	4,104
Caboolture	15,569	219	5	4	..	132,292	8,768	528	6,457
Cairns	19,676	676	7	43	..	39,437	6,075	833	2,579
Cleveland	18,378	113	..	14	..	124,221	18,159	1,066	5,815
Clifton	17,671	170	9	70	..	82,262	4,731	454	2,183
Condamine	6,388	157	44	210	13	34,955	1,458	209	1,393
Crow's Nest	14,553	120	64	30	..	47,002	3,795	194	2,921
Dalby	11,742	726	68	710	32	48,877	2,502	226	1,742
Dugandan	26,408	2,763	207	188	344	130,062	9,416	815	3,800
Gatton	20,185	2,265	557	321	18	75,365	7,754	951	2,670
Gayndah	13,658	608	112	195	30	49,562	4,232	510	2,122
Gin Gin	5,960	433	5	9	..	28,860	1,294	149	1,412
Gladstone	8,699	157	13	243	275	39,774	2,779	341	1,919
Gympie	30,910	1,240	32	192	11	100,469	18,480	1,821	4,687
Harrisville	18,422	1,135	108	291	98	108,909	5,405	557	3,150
Ingham	15,120	607	15	10	..	44,979	3,547	530	2,733
Innisfail	16,184	753	..	15	..	36,347	5,908	1,028	3,283
Laidley	11,518	2,146	631	252	365	63,480	5,129	525	2,621
Logan	16,479	386	66	15	311	95,958	3,200	276	3,451
Lowood	11,076	1,568	341	55	12	41,694	5,160	394	1,165
Mackay	38,724	1,560	49	617	30	164,281	10,456	1,347	8,477
Marburg	11,201	1,403	182	81	..	54,282	3,862	407	1,624
Maroochy	39,633	1,168	37	89	36	255,305	9,803	930	12,650
Maryborough	12,202	92	3	172	40	56,474	2,998	289	2,816
Mount Morgan	7,221	90	10	391	106	27,639	1,320	189	1,473
Nanango	25,055	1,431	141	617	29	139,406	8,643	646	5,505
Oakey Cooyar	5,033	175	110	104	1	29,652	1,323	132	1,281
Oakey	25,526	570	156	277	5	143,789	5,128	433	5,135
Pittsworth	13,033	303	52	156	6	82,879	3,134	323	3,537
Proserpine	6,852	425	27	30	18	32,229	525	62	1,674
Redcliffe	11,216	249	4	15	151	60,226	2,394	275	2,457
Rockhampton	30,035	434	38	394	49	140,967	21,610	1,871	8,445
Roma	7,230	123	..	244	..	30,000	1,411	161	1,486
Rosewood	18,104	1,065	112	153	9	100,677	2,294	207	2,775
Southport	9,814	678	116	119	12	39,784	2,872	366	1,830
Stanthorpe	12,730	34	14	89	..	80,785	4,863	444	3,867
Toogoolawah	9,129	700	128	141	2	34,041	2,257	334	1,372
Toowoomba Helidon ..	5,498	88	4	28	..	18,057	1,254	127	902
Toow'mba	24,539	242	55	99	20	101,445	7,061	753	3,689
Townsville	7,957	355	..	86	46	47,027	3,769	305	2,874
Warwick..	22,065	230	40	674	..	70,956	3,115	316	3,013
Wienholt	30,453	1,353	187	264	22	96,564	10,462	1,035	4,695
Wynnum	21,390	502	..	..	..	220,559	41,731	2,478	10,425
All Other Districts ..	103,221	3,477	402	1,636	364	366,174	25,604	2,698	19,156
Totals, 1933 ..	1,041,819	37,230	4,594	10,033	2,942	5,523,784	400,781	36,071	251,387
Totals, 1932 ..	987,164	33,225	4,544	8,413	3,439	5,515,981	384,377	34,525	251,857
Increase, 1933 ..	54,655	4,005	50	1,620	..	7,803	16,404	1,546	..
Decrease, 1933 ..	..	..	..	..	497	..	..	..	470

NOTE.—Total value of production of poultry and eggs—1932, £544,811; 1933, £490,064.

N.B.—Brisbane (B) refers to South Brisbane.

APIARIES.

Table No. VIII.

RETURN SHOWING THE PARTICULARS OF THE BEE INDUSTRY FOR THE YEAR 1933.

Petty Sessions District.	Number of Owners.	Number of Hives.		Honey.	Average per Productive Hive.	Wax.
		Productive.	Non-Productive.			
				Lb.	Lb.	Lb.
Brisbane (A)	27	408	120	16,122	40	314
Caboolture	8	684	583	16,944	25	163
Charters Towers	2	38	2	6,160	162	80
Cleveland	18	220	145	12,646	67	209
Clifton	2	85	..	8,180	96	211
Cook	2	140	4	7,308	52	480
Dalby	5	474	53	22,830	48	30
Dugandan	12	139	28	13,133	94	180
Gatton	11	117	60	10,558	90	144
Gympie	16	545	212	14,446	27	338
Inglewood	11	232	75	26,060	112	178
Killarney	7	775	46	85,886	111	1,042
Laidley	9	133	34	6,660	50	63
Logan	30	450	167	14,863	33	255
Mackay	4	109	34	6,104	56	56
Maroochy	34	543	105	16,900	31	341
Maryborough	45	747	399	38,929	52	905
Oakey	13	142	26	6,610	47	46
Redcliffe	17	189	59	10,276	54	93
Rockhampton	42	1,382	243	64,273	47	710
Rosewood	24	191	58	7,822	41	62
Southport	10	177	56	15,122	86	274
Toowoomba { Helidon	4	62	..	6,540	105	32
Toowoomba { Toowoomba	10	165	41	6,665	40	180
Warwick	19	1,105	93	102,882	93	847
Woodford	22	318	74	11,210	35	295
All Other Districts	149	1,385	677	55,201	40	1,199
Totals, 1933	553	10,955	3,394	610,330	56	8,727
Totals, 1932	528	10,415	2,619	531,075	51	9,948
Increase, 1933	25	540	775	79,255	5	..
Decrease, 1933	..	..	..	..	..	1,221

NOTE.—Total value of honey and wax—1932, £9,830; 1933, £10,703.

HOLDINGS, CULTIVATION, ETC.

Table No. IX.

RETURN SHOWING PROGRESS OF HOLDINGS AND AREA CULTIVATED.—RETURN FOR 10 YEARS.

Year.	Number of Holdings Returned. †	Increase per cent. on Previous Year.	Increase per cent. on Figures of 1904.	Area under Cultivation.	Increase per cent. on Previous Year.	Increase per cent. on Figures for 1904.
1904 ...	17,854	...	...	577,896	...	...
1924 ...	32,359	2·84	81·24	1,275,039	6·42	120·63
1925 ...	33,533	3·63	87·82	1,241,118	—2·66	114·76
1926 ...	32,051	—4·42	79·52	1,288,518	3·82	122·97
1927 ...	30,414	—5·11	70·35	1,295,992	0·58	124·26
1928 ...	30,586	0·57	71·31	1,268,475	—2·12	119·51
1929 ...	30,701	0·38	71·95	1,269,242	0·06	119·63
1930 ...	30,790	0·29	72·45	1,331,513	4·91	130·41
1931 ...	31,450	2·14	76·15	1,401,932	5·29	142·59
1932 ...	31,996	1·74	79·21	1,426,648	1·76	146·87
1933 ...	32,041	0·14	79·46	1,499,996	5·14	159·56

The minus sign (—) implies a decrease.

† Includes some dairying holdings without cultivation.

Table No. X.

SHOWING CLASSIFICATION OF HOLDINGS, COMPRISING FREEHOLD LAND USED FOR AGRICULTURAL AND/OR DAIRYING PURPOSES, IN THE VARIOUS DIVISIONS OF QUEENSLAND.

Divisions.	1 and under 50.	50 and under 100.	100 and under 500.	500 and under 1.000.	1,000 and under 5.000.	5.000 and under 10,000.	10,000 and under 20,000.	20.000 and under 50.000.	50,000 and over.	Total.
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Moreton	2,243	1,794	4,697	614	203	2	2	..	..	9,555
Wide Bay	759	798	4,362	732	301	3	2	1	..	6,958
Port Curtis	179	100	773	279	176	8	3	..	2	1,520
Edgecumbe	442	486	1,878	171	59	5	..	..	..	3,041
Rockingham	385	859	1,564	58	12	4	..	1	..	2,883
York Peninsula ..	44	53	135	2	2	..	..	..	..	236
Carpentaria	24	1	4	4	4	..	..	..	..	37
Central-Western ..	10	..	2	..	1	..	..	..	..	13
South-Western ..	32	2	4	1	2	1	..	..	..	42
Central	22	..	9	10	13	2	2	2	..	60
Maranoa	8	9	78	73	177	17	3	1	..	366
Downs	584	500	2,924	862	510	19	7	..	..	5,406
Total No. of Holdings	4,732	4,602	16,430	2,806	1,460	61	19	5	2	30,117
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Moreton	48,113	131,492	1,033,753	412,095	317,573	14,462	26,000	..	..	1,983,488
Wide Bay	20,648	59,503	1,033,733	508,314	451,748	19,304	26,061	21,093	..	2,140,404
Port Curtis	3,469	9,322	207,206	197,399	304,664	55,898	38,580	..	123,800	940.338
Edgecumbe	10,686	35,558	378,602	112,594	104,973	35,105	..	..	..	677,518
Rockingham	10,464	63,111	278,916	38,586	24,446	25,460	..	47,000	..	487,983
York Peninsula ..	1,079	4,053	27,920	1,352	2,997	..	..	..	..	37,401
Carpentaria	170	88	800	2,780	11,593	..	..	..	..	15,431
Central-Western ..	35	..	260	..	2,010	..	..	..	..	2,305
South-Western ..	206	169	725	700	3,400	5,535	..	..	..	10,735
Central	158	..	2,132	6,098	28,666	12,895	23,885	47,000	..	120,834
Maranoa	139	667	25,057	52,092	351,485	123,320	38,000	22,573	..	613,333
Downs	15,849	36,244	765,350	583,652	873,670	130,613	86,444	..	..	2,491,822
Total Area of Holdings	111,016	340,207	3,754,454	1,915,662	2,477,225	422,592	238,970	137,666	123,800	9,521,592

NOTE.—The above figures include only those holdings engaged in Agriculture and/or Dairying, purely Pastoral Holdings not being covered.

Table No. XI.

SHOWING CLASSIFICATION OF HOLDINGS, COMPRISING FREEHOLD, LEASED, AND CROWN LAND, USED FOR AGRICULTURAL AND/OR DAIRYING PURPOSES, IN THE VARIOUS DIVISIONS OF QUEENSLAND.

Divisions.	1 and under 50.	50 and under 100.	100 and under 500.	500 and under 1.000.	1,000 and under 5,000.	5.000 and under 10,000.	10,000 and under 20.000.	20.000 and under 50.000	50,000 and over.	Total.
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Moreton	2,281	1,797	4,722	630	218	2	3	..	..	9,653
Wide Bay	761	802	4,441	783	372	6	3	1	..	7,169
Port Curtis	189	108	1,028	429	267	14	10	2	3	2,050
Edgecumbe	467	495	1,963	192	62	6	1	1	..	3,187
Rockingham	441	883	1,794	71	15	4	..	1	..	3,209
York Peninsula ..	46	57	131	2	2	..	..	..	..	238
Carpentaria	34	1	4	4	4	..	..	..	..	47
Central-Western ..	10	..	2	..	1	..	..	..	..	13
South-Western ..	37	2	4	1	2	1	..	..	1	48
Central	29	1	9	12	15	2	2	2	..	72
Maranoa	8	9	65	69	198	20	3	2	..	374
Downs	592	539	2,929	973	636	36	14	1	..	5,720
Total No. of Holdings	4,895	4,694	17,092	3,166	1,792	91	36	10	4	31,780
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Moreton	48,971	131,890	1,041,098	427,338	341,436	16,352	38,070	..	..	2,045,155
Wide Bay	20,621	59,879	1,054,837	543,549	594,587	35,461	43,450	21,093	..	2,373,477
Port Curtis	3,684	10,102	287,525	300,949	461,538	93,284	149,311	70,000	183,350	1,559,743
Edgecumbe	11,172	36,286	402,907	126,360	111,256	40,659	10,961	33,040	..	772,641
Rockingham	11,412	65,011	321,695	48,834	29,825	25,460	..	47,000	..	549,237
York Peninsula ..	1,147	4,325	28,511	1,352	2,997	..	..	..	..	38,332
Carpentaria	253	88	800	2,780	11,593	..	..	..	..	15,514
Central-Western ..	35	..	260	..	2,010	..	..	..	..	2,305
South-Western ..	215	169	725	700	3,400	5,535	..	..	1,372,960	1,383,704
Central	199	80	2,529	7,528	31,670	12,895	23,885	47,000	..	125,786
Marnaoa	139	667	20,910	49,305	412,721	145,808	38,000	44,573	..	712,123
Downs	16,215	44,231	771,088	695,601	1,118,873	253,273	182,147	30,000	..	3,111,428
Total Area of Holdings	114,063	352,728	3,932,885	2,204,296	3,121,906	628,727	485,824	292,706	1,556,310	12,689,445

NOTE.—The above figures include only those holdings engaged in Agriculture and/or Dairying, purely Pastoral Holdings not being covered.

N.B.—In Tables Nos. X and XI a holding (owned by one person or Firm) on which there are "share" farmers is classed as one holding. In Tables Nos. IX and XII "share" farmers are counted individually.

Table No. XII.

Return showing Number of Farms Grouped according to Area under Cultivation for the Year 1933.

Petty Sessions District.	Under 5 Acres.		5 and under 20 Acres.		20 and under 50 Acres.		50 Acres and Over.		Totals.	
	No. of Farms.	Acres.	No. of Farms.	Acres.	No. of Farms.	Acres.	No. of Farms.	Acres.	No. of Farms.	Acres.
Allora	..	..	1	10	6	220	309	49,763	316	49,993
Atherton	29	68	105	1,095	76	2,429	158	16,136	368	19,728
Ayr	6	15	28	347	116	4,308	463	39,254	613	43,924
Banana	1	3	14	163	30	1,161	29	2,921	74	4,248
Beaudesert	32	100	216	2,567	212	6,512	68	4,736	528	13,915
Biggenden	49	161	138	1,530	59	1,820	9	702	255	4,213
Bowen	21	65	121	1,442	54	1,710	5	367	201	3,584
Brisbane (A)	181	458	447	4,660	76	2,033	4	244	708	7,395
Bundaberg	76	222	313	3,766	455	14,668	147	18,927	991	37,583
Cairns	28	68	87	1,035	195	6,782	337	33,399	647	41,284
Cardwell	6	29	28	296	85	3,348	140	9,693	259	13,366
Cleveland	45	148	234	2,406	28	744	..	..	307	3,298
Childers	8	25	54	668	88	2,829	106	11,805	256	15,327
Chinchilla	5	19	17	205	32	981	35	2,159	89	3,364
Clifton	3	11	4	56	24	910	512	95,353	543	96,330
Condamine	10	30	42	485	45	1,371	34	4,495	131	6,381
Crow's Nest	8	25	72	994	152	5,304	162	14,276	394	20,599
Dalby	6	17	53	613	130	4,362	216	27,390	405	32,382
Douglas	6	20	39	525	71	2,365	72	6,798	188	9,708
Dugandan	10	37	102	1,339	349	11,868	147	9,686	608	22,930
Eidsvold	4	8	41	553	67	2,229	45	4,033	157	6,823
Esk	7	22	57	712	58	1,921	27	1,904	149	4,559
Gatton	3	8	53	759	295	9,994	208	15,608	559	26,369
Gayndah	12	33	132	1,519	213	7,078	156	14,965	513	23,595
Gin Gin	16	44	60	722	131	4,366	79	6,390	286	11,522
Gladstone	121	319	210	2,362	46	1,299	16	1,489	393	5,469
Gympie	449	1,205	412	4,053	92	2,398	16	1,059	969	8,715
Harrisville	5	12	54	743	191	6,537	145	11,394	395	18,686
Ingham	8	19	70	861	170	5,634	337	31,411	585	37,925
Inglewood	..	..	11	156	42	1,456	62	6,869	115	8,481
Innisfail	1	4	26	373	268	9,466	339	28,606	634	38,449
Ipswich	18	47	73	869	58	1,787	19	1,299	168	4,002
Killarney	8	21	21	225	35	1,140	126	15,864	190	17,250
Laidley	2	7	42	574	165	5,767	202	14,661	411	21,009
Logan	54	150	308	3,741	91	2,256	3	229	456	6,376
Lowood	..	..	7	107	176	5,980	113	7,806	296	13,893
Mackay	56	163	182	2,221	664	22,990	754	74,279	1,656	99,653
Marburg	3	7	31	404	161	5,265	52	3,335	247	9,011
Mareeba	33	98	191	2,007	31	846	4	539	259	3,490
Maroochy	320	847	736	7,366	159	4,749	19	1,218	1,234	14,180
Maryborough	53	165	305	3,585	151	4,189	17	1,105	526	9,044
Monto	28	119	93	1,402	134	4,867	190	15,141	445	21,529
Mount Morgan	63	230	143	2,549	176	8,497	377	41,043	759	52,319
Nanango	8	23	109	1,264	248	8,646	485	45,066	850	54,999
Oakey { Cooyar	3	9	21	268	51	1,687	48	3,412	123	5,376
Oakey { Oakey	5	17	31	379	142	4,868	623	103,285	801	108,549
Pittsworth	1	2	9	102	51	1,834	480	98,796	541	100,734
Proserpine	5	17	67	914	175	5,649	120	9,404	367	15,984
Redcliffe	49	154	215	2,292	67	1,836	2	170	333	4,452
Rockhampton	184	619	260	2,910	98	3,084	50	3,016	592	9,629
Roma	13	26	46	545	55	1,843	155	26,080	269	28,494
Rosewood	5	19	67	928	173	5,629	90	6,137	335	12,713
Southport	115	287	208	1,981	44	1,331	7	635	374	4,234
Stanthorpe	42	131	470	5,697	251	6,942	12	942	775	13,712
Texas	9	21	33	399	19	592	18	2,554	79	3,566
Tiaro	55	149	121	1,380	76	2,132	16	1,090	268	4,751
Toogoolawah	14	46	58	687	123	4,120	90	6,914	285	11,767
Toowoomba { Helidon	5	19	49	637	100	3,176	33	2,168	187	6,000
Toowoomba { Toowoomba	40	99	112	1,265	149	4,983	325	45,126	626	51,473
Warwick	16	47	75	929	98	3,331	465	67,871	654	72,178
Wienholt	14	42	116	1,465	403	13,905	522	43,658	1,055	59,070
All Other Districts	482	1,214	722	7,341	222	6,530	69	5,329	1,495	20,414
Totals, 1933	2,859	7,990	8,162	93,448	8,402	278,554	9,869	1,120,004	29,292	1,499,996
Totals, 1932	2,602	7,674	8,178	91,031	8,334	271,255	9,128	1,056,688	28,242	1,426,648
Increase, 1933	257	316	..	2,417	68	7,299	741	63,316	1,050	73,348
Decrease, 1933	..	..	16	..	..	..	..	..	..	..

Table No. XIII.—Return Showing Land Treated for Cultivation, Etc., for the Years 1932 and 1933.

	1932.	1933.
	Acres.	Acres.
Under crop	1,245,638	1,313,438
In fallow	70,629	68,482
Previously cropped but not during 1932 and 1933 respectively	110,381	118,076
Under cultivation	1,426,648	1,499,996
Under permanent artificially sown grasses	732,095	777,706
New ground cleared during the year but not ploughed	11,546	6,153
Grand total	2,170,289	2,283,855

Table No. XIV.—Return showing the Acreage and Value of Agricultural Crops for the Years 1932 and 1933.

—	1932.		1933.	
	Acres.	Value.	Acres.	Value.
		£		£
Grain crops	357,077	862,143	413,020	1,466,964
Green forage	392,762	981,905	311,462	622,924
Hay and straw	64,076	415,821	92,943	610,008
Root crops	13,552	191,531	15,653	169,426
Sugar-cane	291,136	6,852,717	311,910	7,247,122
Fruit	32,305	1,097,456	33,413	1,113,360
All other	94,730	904,158	135,037	1,073,467
Total	1,245,638	11,305,731	1,313,438	12,303,271

Table No. XV.—Return showing Labour Employed, including Owners or Occupiers Working on Holdings, and the Capital Invested in Farming Machinery, Etc., 1933.

Petty Sessions District.	Labour.				Value of Machinery and Implements.				
	Farming Principally.		Dairying Principally.		Farming.	Dairying.	Irrigation.	Travelling Machinery.	Total.
	Males.	Females.	Males.	Females.	£	£	£	£	£
Allora	362	12	237	302	125,212	9,721	1,000	2,180	138,113
Atherton	497	6	806	412	51,542	29,211	1,302	5,242	87,297
Ayr	1,852	4	2	2	167,531	3	411,559	112,282	691,375
Beaudesert	611	7	675	676	50,038	54,004	645	150	104,837
Brisbane (A)	1,115	103	709	249	28,385	9,394	8,138	17,974	63,891
Bundaberg	1,527	233	461	374	128,620	15,441	57,347	50,449	251,857
Cairns	2,267	7	29	6	165,935	1,238	610	106,753	274,536
Cardwell	736	..	4	..	31,899	206	300	30,465	62,870
Childers	550	16	63	41	40,460	1,877	50	20,440	62,827
Cleveland	479	47	20	13	10,335	543	31,640	9,333	51,851
Clifton	706	21	410	388	194,753	18,427	..	56,194	269,374
Crow's Nest	682	..	664	455	34,785	26,765	145	530	62,225
Dalby	784	39	991	515	61,415	52,597	30	8,997	123,039
Douglas	338	..	51	17	53,545	1,079	..	2,335	56,959
Dugandan	897	17	674	621	74,823	18,236	3,759	6,662	103,480
Gatton	827	20	620	524	68,380	15,425	7,922	15,725	107,452
Gayndah	821	161	918	542	47,625	33,059	4,175	695	85,554
Gin Gin	409	3	111	151	33,589	4,903	200	11,142	49,834
Gladstone	504	10	638	355	22,929	29,471	1,470	3,002	56,872
Gympie	1,038	15	2,123	1,761	51,223	89,016	999	5,657	146,895
Harrisville	555	5	474	410	57,015	14,099	1,410	3,910	76,434
Ingham	1,386	201	21	..	127,217	550	550	83,973	212,290
Innisfail	1,661	5	..	..	263,715	62	..	8,315	272,092
Killarney	402	6	362	91	51,165	10,691	1,200	4,576	67,632
Laidley	738	19	487	479	59,870	11,016	2,470	4,010	77,366
Lowood	505	3	20	408	41,327	8,049	980	..	50,356
Mackay	3,637	277	159	69	332,890	6,582	2,802	108,899	451,173
Maroochy	1,583	67	940	487	39,302	29,086	682	13,667	82,737
Maryborough	730	53	410	299	40,518	9,277	280	13,932	64,007
Monto	517	13	520	298	22,807	16,635	260	5,635	45,337
Mount Morgan	557	52	420	239	37,262	12,190	1,122	3,422	53,996
Nanango	1,147	16	1,362	456	116,294	81,888	4,596	7,665	210,443
Oakey { Cooyar	92	..	165	135	7,129	9,077	..	1,300	17,506
Oakey { Oakey	1,209	16	1,143	872	202,314	64,497	420	42,253	309,484
Pittsworth	712	4	436	264	160,971	28,477	..	48,133	237,581
Proserpine	618	18	4	9	74,665	2,130	95	26,386	103,276
Redcliffe	407	20	489	293	19,445	15,784	1,973	7,931	45,133
Rockhampton	733	53	733	420	32,869	22,592	13,236	16,362	85,059
Rosewood	534	12	517	484	34,119	11,769	290	2,140	48,318
Roma	325	47	348	221	45,106	10,275	580	2,435	58,396
Southport	284	14	802	437	19,180	22,767	1,590	5,764	49,301
Stanthorpe	1,176	125	38	9	49,599	278	1,730	2,005	53,612
Tiaro	412	1	528	322	26,035	17,900	70	300	44,305
Toogoolawah	423	10	226	348	33,638	18,608	800	850	53,896
Toowoomba { Helidon	346	10	345	187	12,495	8,923	80	429	21,927
Toowoomba { Toowoomba ..	827	39	628	548	84,881	31,255	6,190	14,562	136,888
Warwick	894	10	695	328	157,584	20,181	100	9,461	187,326
Wienholt	1,561	4	1,971	1,074	142,131	76,307	300	9,144	227,882
All Other Districts	5,124	617	5,359	2,948	230,582	150,674	73,901	46,033	501,190
Totals, 1933	46,097	2,438	29,808	19,539	3,965,149	1,122,235	648,998	959,699	6,696,081
Totals, 1932	46,203	1,999	28,602	18,587	4,034,078	1,109,019	585,166	860,890	6,589,153
Increase, 1933	..	439	1,206	952	..	13,216	63,832	98,809	106,928
Decrease, 1933	106	..	..	..	68,929	..	..	..	..

Table No. XVI.

IRRIGATION.—RETURN FOR 10 YEARS

Year.	Acres Irrigated.	Year.	Acres Irrigated.
1924	18,235	1929	26,282
1925	21,669	1930	26,947
1926	24,250	1931	28,414
1927	21,411	1932	31,409
1928	25,344	1933	29,363

Table No. XVII

RETURN SHOWING THE AREA IRRIGATED AND THE PRINCIPAL CROPS TREATED FOR THE YEAR 1933.

Petty Sessions District.	Number of Irrigators.	Acres Irrigated.	*Cost of Power, Water, &c., Used.	Original Source of Water Supply.	Means Employed for Procurement and Utilisation.	Principal Crops Treated.
			£			
Ayr	533	19,890	73,457	Spears and wells	Drains and fluming	Cane
Banana	66	1,538	2,425	River	Gravitation and canal system	Cotton and miscellaneous crops
Bowen	64	296	1,194	Wells and creeks	Oil and petrol engines, drains	Vegetables
Brisbane (A)	53	236	5,556	Rivers, wells, and creeks	Oil and petrol engines, pipes, and sprays	Vegetables and lucerne
Brisbane (B)	45	203	2,450	Springs and bores	Oil and petrol engines, flooding, and sprays	Fruit and vegetables
Bundaberg	11	1,917	7,815	Wells and rivers	Oil and steam engines	Cane
Cleveland	141	698	3,200	Creeks and wells	Oil engines, pipes, and sprays	Fruit and vegetables
Dugandan	33	208	1,560	Creeks	Flooding	Vegetables
Gatton	34	392	2,832	Creeks and wells	Oil engines, tractor flooding, sprays, and flooding	Miscellaneous crops and vegetables
Mackay	31	157	24,510	Creeks	Oil engines	Cane
Rockhampton	96	654	3,633	Creeks, wells, river, and bores	Oil engines, windmills, drains, and furrows	Fruit and vegetables
Texas	41	819	1,866	River	Oil engines	Tobacco
Stanthorpe	11	151	373	Creeks and wells	Oil engines and pipes	Fruit, vegetables, and tobacco
Townsville	32	267	1,128	Rivers and wells	Oil engines, windmills, drains, and furrows	Cane, fruit, and vegetables
All Other Districts	359	1,937	243,236	Various	Various	Various crops
Total State	1,550	29,363	375,235			

Sugar-cane, 21,998 acres ; Cotton, 483 acres ; Tobacco, 1,023 acres ; Green Fodder, 1,079 acres ; Fruit and Vegetables, 2,683 acres ; Miscellaneous crops, 2,097 acres. N.B.—Brisbane (B) refers to South Brisbane. * Exclusive of Value of Machinery shown in Table IX.

Table No. XVIII.

WHEAT (GRAIN).

RETURN FOR TEN YEARS SHOWING THE AREA AND PRODUCE OF WHEAT FOR GRAIN.

Year.	Area.	Produce.	Average per Acre.	INCREASE OR — DECREASE ON THE PREVIOUS YEAR.		
				Area.	Produce.	Average per Acre.
	Acres.	Bushels.	Bushels.	Acres.	Bushels.	Bushels.
1924	189,145	2,779,829	14·70	137,996	2,536,116	9·94
1925	165,999	1,973,477	11·89	– 23,146	– 806,352	– 2·81
1926	57,084	379,339	6·65	–108,915	–1,594,138	– 5·24
1927	215,073	3,783,584	17·59	157,989	3,404,245	10·94
1928	218,069	2,515,561	11·54	2,996	–1,268,023	– 6 05
1929	204,116	4,235,172	20·75	– 13,953	1,719,611	9·21
1930	272,316	5,107,561	18·76	68,200	872,389	– 1·99
1931	248,783	3,863,894	15·53	– 23,533	–1,243,667	– 3·23
1932	250,049	2,493,902	9·97	1,306	–1,369,992	– 5·56
1933	232,053	4,361,614	18·80	– 17,996	1,867,712	8·83
Average of Ten Years	205,269	3,149,393	15·34	...	...	...

Table No. XIX.

WHEAT.

RETURN FOR TEN YEARS SHOWING AVERAGE YIELD PER ACRE IN EACH STATE.

States.	Average Produce per Acre—Bushels.										
	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	Mean for 10 Years ending 1933.
Queensland	14·70	11·89	6·65	17·59	11·54	20·75	18·76	15·53	9·97	18·80	14·62
New South Wales	16·83	11·56	14·13	8·92	12·04	8·66	12·83	14·92	16·42	12·15	12·85
Victoria	17·51	11·64	16·08	8·54	12·59	7·13	11·70	11·77	14·81	13·96	12·57
South Australia	12·21	11·60	12·84	8·18	7·79	6·40	8·34	11·81	10·43	9·21	9·88
Western Australia	12·79	9·69	11·68	12·13	10·10	10·95	13·53	13·14	12·33	11·61	11·80
Tasmania	17·86	20·72	23·15	26·25	20·17	22·37	20·49	15·61	20·64	20·00	20·73

Table No. XX.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCE OF WHEAT FOR GRAIN IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE.

Divisions and Petty Sessions Districts.	1932.			1933.			INCREASE OR — DECREASE.		
	Area.	Produce.	Average per Acre.	Area.	Produce.	Average per Acre.	Area.	Produce.	Average per Acre.
	Acres.	Bushels.	Bushels.	Acres.	Bushels.	Bushels.	Acres.	Bushels.	Bushels.
MORETON.									
Crow's Nest	196	3,820	19·49	209	3,491	16·70	13	— 329	— 2·79
Dugandan	3	180	60·00	25	150	6·00	22	— 30	— 54·00
Gatton	85	750	8·82	50	414	8·28	— 35	— 336	— 0·54
Oakey (Cooyar)	51	583	11·45	41	582	14·20	— 10	— 1	2·75
Total, Moreton	335	5,333	15·92	325	4,637	14·27	— 10	— 696	1·65
WIDE BAY.									
Gayndah	...	...	...	35	100	2·86	35	100	2·86
Gympie	...	...	...	7	60	8·57	7	60	8·57
Nanango	70	738	10·54	194	1,847	9·52	124	1,109	— 1·02
Wienholt	50	450	9·00	152	2,396	15·76	102	1,946	6·76
Total, Wide Bay	120	1,188	9·90	388	4,403	11·35	268	3,215	1·45
PORT CURTIS.									
Banana	266	1,200	4.51	240	3,720	15·50	— 26	2,520	10·99
Mount Morgan	..	...	...	340	6,210	18·26	340	6,210	18·26
Rockhampton	...	...	...	2	35	17·50	2	35	17·50
Total, Port Curtis	266	1,200	4·51	582	9,965	17·12	316	8,765	12·61
MARANOA.									
Mitchell	1,496	2,615	1·75	1,280	22,154	17·31	— 216	19,539	15·56
Roma	19,381	54,152	2·79	18,685	386,147	20·67	— 696	331,995	17·88
Total, Maranoa	20,877	56,767	2·72	19,965	408,301	20·45	— 912	351,534	17·73
DOWNS.									
Allora	23,260	394,998	16·98	21,891	423,027	19·32	— 1,369	28,029	2·34
Chinchilla	145	520	3·59	181	2,900	16·02	36	2,380	12·43
Clifton	46,431	576,897	12·42	36,671	698,712	19·05	— 9,760	121,815	6 63
Condamine	649	1,221	1·88	764	13,076	17·12	115	11,855	15.24
Dalby	7,593	91,859	12·10	12,484	244,713	19·60	4,891	152,854	7·50
Goondiwindi	70	270	3 86	136	1,848	13·59	66	1,578	9·73
Inglewood	752	3,918	5·21	1,911	19,264	10·08	1,159	15,346	4·87
Killarney	7,462	95,175	12·75	6,250	105,980	16·96	— 1,212	10,805	4·21
Oakey	40,124	300,532	7·49	41,733	790,758	18·95	1,609	490,226	11·46
Pittsworth	61,918	555,901	8·98	56,949	1,007,784	17·70	— 4,969	451,883	8·72
Texas	170	885	5·21	261	6,909	26·47	91	6,024	21·26
Toowoomba	10,287	95,943	9·33	9,297	185,317	19·93	— 990	89,374	10 60
Warwick	29,590	311,295	10·52	22,265	434,020	19·49	— 7,325	122,725	8·97
Total, Downs	228,451	2,429,414	10·63	210,793	3,934,308	18·66	— 17,658	1,504,894	8·03
Total, State	*250,049	2,493,902	9·97	†232,053	4,361,614	18·80	— 17,996	1,867,712	8·83

* Including 78,851 acres which failed to bear a crop.
† Including 16,539 acres which failed to bear a crop.
NOTE.—Number of wheat farms on which grain was harvested during 1933 was 2,569.

Table No. XXI.

RETURN SHOWING THE QUANTITY OF WHEAT TREATED IN QUEENSLAND DURING THE YEAR 1932–33.

District.	Number of Establishments.	Number of Hands Employed.	Pairs of Stones.	Sets of Rollers.	Wheat Treated.	FLOUR MADE.		MEAL MADE.		BRAN AND POLLARD.	
						Tons.	Value.	Tons.	Value.	Bushels.	Value.
			Pairs.	Sets	Bushels.		£		£		£
Metropolitan Elsewhere } 1932-33	10	366	5	164	4,384,610	91,498	945,123	2,072	20,744	3,605,130	210,743
Total, 1931-32 ...	10	447	5	125	3,780,797	77,376	930,659	1,481	18,058	3,225,135	161,174

Table No. XXII.

BARLEY.

RETURN FOR TWO YEARS SHOWING THE RESULT OF THE CROP.

Barley.	1932.	1933.
	Acres.	Acres.
Reaped for grain	4,790	8,765
Mown for hay	59	198
Used for green food	12,884	9,925
Totals	17,733	18,888

Table No. XXIII.

BARLEY.

RETURN FOR TWO YEARS SHOWING RESULT OF GRAIN CROP

Year.	Area for Grain.	Produce.	Average Produce per Acre
	Acres.	Bushels.	Bushels.
1932	4,790	101,033	21·09
1933	8,765	152,480	17·40
Increase, 1933	3,975	51,447	— 3·69

— Decrease.

Table No. XXIV.

BARLEY.

RETURN SHOWING RESULT OF CROP, DISTINGUISHING BETWEEN MALTING AND OTHER VARIETIES, FOR THE YEAR 1933.

Petty Sessions District.	Malting Grain.			Other Varieties Grain.		
	Acres.	Bushels.	Average per Acre, Bushels.	Acres.	Bushels.	Average per Acre. Bushels.
Allora	826	14,398	17·43	88	1,220	13·86
Clifton	2,560	44,386	17·34	1,052	18,231	17·33
Crow's Nest	44	645	14·66	66	1,529	23·17
Dalby	111	2,030	18·29	15	112	7·47
Dugandan	3	66	22·00	4	54	13·50
Esk	...	...	...	4	36	9·00
Goondiwindi	15	500	33·33	...	..	..
Inglewood	40	360	9·00	19	168	8·84
Killarney	25	360	14·40	102	1,042	10·22
Nanango	...	...	...	6	60	10·00
Oakey { Cooyar	3	63	21·00	3	81	27·00
{ Oakey	244	3,362	13·78	234	5,166	22·08
Pittsworth	545	9,472	17·38	240	4,680	19·50
Roma	...	...	..	4	48	12·00
Toowoomba	1,260	22,604	17·94	361	7,912	21·92
Warwick	52	1,540	29·62	839	12,355	14·73
Total State	5,728	99,786	17·42	3,037	52,694	17·35

Table No. XXV.

MALT.

RETURN FOR TEN YEARS SHOWING QUANTITY OF MALT MADE AND HOW DEALT WITH.

Year.	Made from Queensland Barley.	Total Malt Made.	Beer (including Waste).	Malt used in Breweries as returned to Excise.
	Bushels.	Bushels.	Gallons.	Bushels.
1923	42,974	42,974	6,843,125	211,136
1924–25	38,333	38,333	6,488,405	209,995
1925–26	25.413	25,413	7,045,713	227,617
1926–27	13.919	13.919	6.675,966	215,818
1927–28	29,029	29,029	6,361,144	206,637
1928–29	46,342	46,342	6,541,534	199,925
1929–30	44,740	44,740	6,124,413	190,326
1930–31	49,461	49,461	5,302,433	171,603
1931–32	..	...	5,282,022	181,896
1932–33	*	*	5,236,623	176,692

* Information not available for publication, there being only one establishment.

Table No. XXVI.

MAIZE.

RETURN FOR FIVE YEARS SHOWING THE AREA AND PRODUCE OF MAIZE.

Year.	Grain.		Average per Acre.
	Acres.	Bushels.	Bushels.
1929	171,614	4,376,412	25·50
1930	172,176	4,565,850	26·52
1931	147,669	3,780,597	25·60
1932	98,487	1,653,853	16·79
1933	166,948	3,715,764	22·26

Table No. XXVII.

MAIZE (GRAIN).

Return Showing the Area and Production in Each Division of the State for the Year 1933.

Division or Group.	Acres.	Produce.	Average.	Proportion of Divisional Area to Total Area of Maize for Grain.
		Bushels.	Bushels.	Per cent.
Moreton	50,758	911,584	17·96	30·40
Wide Bay	43,203	1,039,668	24·06	25·88
Port Curtis	3,389	44,562	13·15	2·03
Edgecumbe	192	4,401	22·92	0·11
Rockingham	19,150	821,234	42·88	11·47
York Peninsula	36	869	24·14	0·02
Carpentaria	10	40	4·00	0·01
Central Western	...	...	...	...
South Western	...	..	...	...
Central	29	530	18·28	0·01
Maranoa	37	522	14·11	0·02
Downs	50,144	892,354	17·80	30·04
Total	166,948	3,715,764	22·26	100·00

Number of farmers producing maize, 10,283.

Table No. XXVIII.

MAIZE.

Return for Two Years Showing the Area and Produce in Each Principal District of the State.

Petty Sessions District.	Area for Grain.			Produce.			Average per Acre.		
	1932.	1933.	Increase or Decrease.	1932.	1933.	Increase or Decrease.	1932.	1933.	Increase or Decrease
	Acres.	Acres.	Acres.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
Allora	856	4,780	3,924	17,621	90,345	72,724	20·59	18·95	—1·64
Atherton	16,204	18,733	2,529	687,603	811,673	124,070	42·43	43·33	0·90
Beaudesert	2,702	3,535	833	65,891	91,696	25,805	24·39	25·94	1·55
Clifton	2,616	11,149	8,533	24,696	179,384	154,688	9·44	16·09	6·65
Crow's Nest	5,291	5,984	693	39,447	131,703	92,256	7·47	22·01	14·54
Dugandan	7,026	7,433	407	81,400	129,162	47,762	11·59	17·38	5·79
Gatton	5,190	6,405	1,215	68,326	106,487	38,161	13·16	16·63	3·47
Gayndah	948	2,075	1.127	3,024	27,547	24,523	3·26	13·28	10·02
Gympie	1,125	1,225	100	34,613	36,430	1,817	30·77	29·74	—1·03
Harrisville	2,622	3,584	962	22,157	52,261	30,104	8·45	14·58	6·13
Killarney	1,661	3,361	1,700	18,484	76,041	57,557	11·13	22·62	11·49
Laidley	4,748	6,473	1,725	84,828	104,988	20,160	17·87	16·22	—1·65
Lowood	3,846	4,194	348	55,834	64,891	9,057	14·52	15·47	0·95
Marburg	655	1,708	1,053	7,803	29,750	21,947	11·91	17·42	5·51
Nanango	9,071	16,654	7,583	80,351	403,059	322,708	8·86	24·20	15·34
Oakey Cooyar	887	1,343	456	7,120	26,206	19,086	8·08	19·51	11·43
Oakey	2,301	8,257	5,956	29,051	131,928	102,877	12·63	15·98	3·35
Pittsworth	158	4,163	4,005	1,597	61,306	59,709	10·11	14·73	4·62
Rosewood	1,228	2,523	1,295	12,126	31,626	19,500	9·87	12·54	2 67
Toogoolawah	1,695	2,471	776	29,860	43,580	13.720	17·62	17·64	0·02
Toowoomba Helidon ...	986	1,127	141	11,717	15.688	3,971	11·88	13·92	2·04
Toowoomba ...	2,189	5,509	3,320	22,591	108,295	85,704	10.32	19·66	9·34
Warwick	5,525	11,482	5,957	35,104	229,503	194,399	6·35	19·99	13 64
Wienholt	11,376	20,022	8,646	94,759	522,771	428,012	8·33	26·11	17·78
All other Districts ...	7,581	12,758	5,177	117,850	209,444	91,594	15·55	16·42	0·87
Totals	98,487	166,948	68,461	1,653,853	3,715,764	2,061,911	16·79	22·26	5·47

Table No. XXIX.

OATS.

Return for Five Years Showing the Area under Crop.

Oats.	1929.	1930.	1931.	1932.	1933.
	Acres.	Acres.	Acres.	Acres.	Acres.
Reaped for grain	2,003	5,132	1,364	3,733	5,207
Mown for hay	2,608	4,280	1,617	2,724	4,280
Cut for green fodder	55,896	67,330	96,086	107,619	103,919
Totals	60,507	76,742	99,067	114,076	113,406

Table No. XXX.

OATS.

Return for Two Years Showing the Result of the Grain Crop.

Year.	Area for Grain.	Produce.	Average per Acre.
	Acres.	Bushels.	Bushels.
1932	3,733	58,729	15·73
1933	5,207	69,534	13·35
Increase, 1933	1,474	10,805	— 2·38

— Decrease.

Table No. XXXI.

RYE.

Return for Five Years Showing the Area and Produce of the Grain Crop.

Year.	Area.	Produce.	Average per Acre.
	Acres.	Bushels.	Bushels.
1929	27	364	13·48
1930	29	330	11·38
1931	7	54	7·71
1932	18	239	13·28
1933	47	840	17·87

Table No. XXXII.

POTATOES.

Return for Five Years Showing the Area, Production, and Value of the English Potato Crop

	Acres.	Tons.	Value.
1929 ..	8,116 ..	13,214 ..	£225,739
1930 ..	10,277 ..	18,489 ..	£165,245
1931 ..	10,374 ..	17,189 ..	£132,499
1932 ..	9,743 ..	14,017 ..	£108,630
1933 ..	11,936 ..	20,123 ..	£125,769

Table No. XXXIII.

COTTON.

Return for Two Years Showing the Area and Produce of Cotton.

Petty Sessions District.	Total Area.		Bearing, 1933.	Not Bearing, 1933.	Produce (Unginned.)	
	1932.	1933.			1932.	1933.
	Acres.	Acres.	Acres.	Acres.	Lbs.	Lbs.
Banana	2,456	2,535	1,155	1,380	565,087	708,510
Biggenden	63	814	723	91	13,345	207,601
Childers	170	202	153	49	6,940	95,835
Dugandan	270	236	197	39	80,814	63,538
Eidsvold	3,617	3,358	1,763	1,595	136,757	436,397
Gatton	380	417	387	30	107,143	141,967
Gayndah	5,896	6,442	3,820	2,622	284,119	1,086,766
Gin Gin	441	277	225	52	29,998	74,350
Gladstone	909	1,106	849	257	99,086	211,518
Harrisville	271	205	159	46	62,162	66,185
Laidley	283	346	209	137	41,578	67,547
Lowood	390	230	180	50	59,248	58,837
Monto	10,814	14,822	10,752	4,070	1,498,257	2,559,172
Mount Morgan	24,681	48,482	41,134	7,348	2,617,528	10,297,069
Nanango	147	259	240	19	8,357	66,652
Rockhampton	1,753	2,568	2,439	129	323,495	433,689
Roma	963	830	498	332	49,805	149,645
Rosewood	149	226	179	47	14,445	61,039
Wienholt	986	1,094	1,078	16	73,260	444,965
All other Districts	1,469	2,647	2,063	584	198,692	487,024
Total State	56,108	87,096	*68,203	18,893	6,270,116	17,718,306

* Of this area 1,860 acres were returned as ratooned for 1934.

Note: The number of Farmers growing Cotton in 1933 was 3,857.

Table No. XXXIV

SUGAR.

RETURN SHOWING THE NUMBER OF PLANTATIONS, AREA OF AND AVERAGE AREA FOR THE YEAR 1933.

DIVISION.	Number of Plantations under 5 acres.	Number of Plantations 5 acres and over.	Area under Cane.	Average to each Planter.
			Acres.	Acres.
Rockingham and York Peninsula	16	2,179	119,278	54
Edgecumbe	57	2,589	124,762	47
Wide Bay	170	1,745	60,562	32
Moreton	166	464	7,308	12
Total	409	6,977	311,910	42

Table No. XXXV.

RETURN FOR FIVE YEARS SHOWING THE NUMBER OF PLANTATIONS, AREA, AND PRODUCE OF SUGAR-CANE.

Year.	Number of Plantations under 5 acres.	Number of Plantations 5 acres and over.	Average to each Planter.	Acres Cultivated.	Acres Crushed.	PRODUCE.	
						Tons Cane.	Tons Sugar, at 94 per cent. Net Titre.
1929 ...	1,064	6,247	40	291,660	214,880	3,581,265	518,516
1930 .	543	6,685	41	296,070	222,044	3,528,660	516,783
1931 ...	541	6,851	42	309,818	233,304	4,034,300	581,276
1932 ...	553	6,678	40	291,136	205,046	3,546,370	514,027
1933 ...	409	6,977	42	†311,910	228,154	4,667 122	638,559

† Exclusive of 3,575 acres used for Green Fodder.

Table No. XXXVI.

RETURN FOR FIVE YEARS SHOWING PERCENTAGES OF YIELDS.

Year.	TO EACH ACRE CRUSHED.		Tons of Cane to One Ton of Sugar.
	Tons of Cane.	Tons of Sugar.	
1929	16·67	2·41	6·91
1930	15·89	2·33	6·83
1931	17·29	2·49	6·94
1932	17·30	2·51	6·90
1933	20·46	2·80	7·31

Table No. XXXVII.

RETURN SHOWING AREA, PRODUCE, &c., IN EACH DIVISION OF THE STATE FOR THE YEAR 1933.

Division and District.	Area for Plants.	Area Stand-over or Unproductive.	Area Crushed for Sugar.	Total Area for Sugar. †	Weight of Cane.	Sugar 94 N.T.	Molasses Returned.
	Acres.	Acres.	Acres.	Acres.	Tons.	Tons.	Gallons.
Rockingham and York Peninsula—							
Cairns and Douglas	1,225	8,025	35,999	45,249	844,146	114,525	3,462,700
Ingham and Innisfail, &c. ..	2,285	9,817	61,927	74,029	1,474,165	197,004	5,462,130
Total	3,510	17,842	97,926	119,278	2,318,311	311,529	8,924,830
Edgecumbe—							
Ayr and Townsville	1,074	11,923	21,398	34,395	621,896	101,640	2,877,840
Proserpine and Bowen ..	275	3,477	8,315	12,067	141,688	24,071	618,500
Mackay	2,704	19,373	56,223	78,300	925,775	124,027	3,548,231
Total	4,053	34,773	85,936	124,762	1,689,359	249,738	7,044,571
Wide Bay—							
Bundaberg, Gin Gin, &c. ..	695	13,226	25,257	39,178	389,839	46,683	2,104,613
Biggenden, Childers, Maryborough, Tiaro, &c.	323	7,036	13,874	21,233	168,291	17,499	887,468
Gympie	6	43	102	151	1,819	*	..
Total	1,024	20,305	39,233	60,562	559,949	64,182	2,992,081
Moreton—							
Logan and Southport ..	18	506	886	1,410	19,509	2,202	41,000
Maroochy, &c.	19	1,706	4,173	5,898	79,994	10,908	359,122
Total	37	2,212	5,059	7,308	99,503	13,110	400,122
Total State	8,624	75,132	228,154	†311,910	4,667,122	638,559	19,361,604

* Cane crushed at Maroochy and Tiaro. † Exclusive of 3,575 acres used for Green Fodder.

Value of Sugar Cane £7,247,122. Value of Raw Sugar made £10,328,690.

Table No. XXXVIII.

RETURN SHOWING THE SUGAR AVERAGES IN EACH DIVISION OF THE STATE FOR THE YEAR 1933.

Divisions or Groups and Districts.	Tons of Cane per Acre Crushed.	Tons of Sugar per Acre Crushed.	Tons of Cane per Ton of Sugar.
Rockingham and York Peninsula—			
Cairns and Douglas	23·45	3·12	7·52
Ingham and Innisfail, &c.	23·80	3·32	7·17
Total	23·67	3·24	7·30
Edgecumbe—			
Ayr and Townsville	29·06	4·41	6·59
Bowen and Proserpine	17·04	2·38	7·15
Mackay	16·47	2·28	7·22
Total	19·66	2·82	6·97
Wide Bay—			
Bundaberg, Gin Gin, &c.	15·43	1·84	8·39
Biggenden, Childers, Maryborough, Tiaro	12·13	1·27	9·53
Gympie*	17·83	*	*
Total	14·27	1·64	8·73
Moreton—			
Logan and Southport	22·02	2·63	8·38
Maroochy, &c.	19·17	2·54	7·55
Total	19·67	2·55	7·70
Total State	20·46	2·80	7·31

* Cane crushed in Maroochy and Tiaro.

Table No. XXXIX.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCE IN EACH DIVISION OF THE STATE.

Division.	AREA UNDER CULTIVATION.			PRODUCTION.					
	1932.	1933.	Increase or —Decrease	1932.		1933.		Increase or —Decrease in 1933.	
				Area Crushed.	Sugar.	Area Crushed.	Sugar.	Area Crushed.	Sugar.
	Acres.	Acres.	Acres.	Acres.	Tons.	Acres.	Tons.	Acres.	Tons.
Rockingham and York Peninsula	118,318	119,278	960	98,098	299,105	97,926	311,529	— 172	12,424
Edgecumbe	116,533	124,762	8,229	82,365	191,166	85,936	249,738	3,571	58,572
Wide Bay	49,750	60,562	10,812	20,475	†15,896	39,233	†64,182	18,758	48,286
Moreton	6,535	7,308	773	4,108	7,860	5,059	13,110	951	5,250
Total	291,136	311,910	20,774	205,046	514,027	228,154	638,559	23,108	124,532

† Gympie Cane part crushed in Moreton Division.

Table No. XL.

RETURN FOR TWO YEARS SHOWING PERCENTAGES IN EACH DIVISION OF THE STATE.

Division.	TO EACH ACRE CRUSHED.				TONS CANE TO EACH TON SUGAR.	
	Tons of Cane.		Tons of Sugar.			
	1932.	1933.	1932.	1933.	1932.	1933.
Rockingham and York Peninsula	21·38	23·67	3·11	3·24	6·87	7·30
Edgecumbe	15·06	19·66	2·25	2·82	6·70	6·97
Wide Bay	7·20	14·27	0·78	1·64	9·24	8·73
Moreton	14·88	19·67	1·89	2·55	7·84	7·70
Total	17·30	20·46	2·51	2·80	6·90	7·31

Table No. XLI.

RETURN SHOWING THE AREA AND PRODUCTION OF SUGAR-CANE AND SUGAR BEET IN AUSTRALIA FOR THE YEAR 1933.

—	Area under Cultivation.	Area Cut or Dug for Manufacture.	Yield of Cane, &c.	Sugar Obtained.
	Acres.	Acres.	Tons.	Tons.
Queensland	311,910	228,154	4,667,122	638,559
New South Wales	*	10,015	230,918	28,809
Victoria (beet)	3,234	3,234	50,625	5.303

* Not yet available.

Table No. XLII.

RETURN SHOWING NUMBER OF SUGAR MILLS IN QUEENSLAND DURING THE YEAR 1932–33.

Manufactories.		Works.	Hands Employed.	VALUE.		
				Machinery.	Land and Premises.	Output.
		No.	No.	£	£	£
Refineries Sugar Mills	In operation, 1932–33 ...	35	5,496	6,858,623	982,445	10,983,962
	Total	35	5,496	6,858,623	982,445	10,983,962

Table No. XLIII.

SUGAR MILLS.

1. Number of Sugar Mill Companies to which advances have been made under—

The Sugar Works Guarantee Acts	13
"*The Sugar Works Act of* 1911" (Babinda and South Johnstone)	2
"*The Sugar Works Act of* 1922" (Tully River Mill)	1
From Consolidated Revenue (North Eton and Racecourse)	2
From General Loan Fund	7
From Trust Funds	0

2. Number of Tramway Companies to which advances have been made under—

The Sugar Works Guarantee Acts (Double Peak)	1
3. Under other conditions	None.

4. Total amount of advances made to 31st December, 1933, under the Sugar Works Guarantee Acts—

	£	s.	d.	£	s.	d.
Marian Mill	39,000	0	0			
Mount Bauple Mill	32,480	16	1			
Pleystowe Mill	35,472	1	3			
Nerang River Mill	19,998	18	10			
Gin Gin Mill	50,000	0	0			
Plane Creek Mill	65,000	0	0			
North Eton Mill	18,200	0	0			
Proserpine Mill	54,000	0	0			
Moreton Mill	32,864	15	0			
Mulgrave Mill	46,000	0	0			
Isis Mill	38,636	0	0			
Mossman Mill	66,300	0	0			
Johnstone Mill	847	17	8			
				498,800	8	10
5. Under "*The Sugar Works Act of* 1911"—						
Babinda Mill	405,429	18	8			
South Johnstone Mill	648,009	7	8			
				1,053,439	6	4
Under "*The Sugar Works Act of* 1922"—						
Tully River Mill	..			795,221	0	0
From Consolidated Revenue—						
North Eton Mill	26,000	0	0			
Racecourse Mill	21,000	0	0			
				47,000	0	0
From General Loan Fund—						
North Eton Mill	62,965	18	4			
Mount Bauple Mill	8,500	0	0			
Gin Gin Mill	2,000	0	0			
Proserpine Mill	17,765	9	4			
Moreton Mill	14,350	0	0			
Mossman Mill	14,071	14	0			
Proserpine Mill	110,500	0	0			
				230,153	1	8
Indebtedness at 31st December, 1933—						
6. Under "*The Sugar Works Act of* 1911"—						
Babinda Mill	..			..		
Under "*The Sugar Works Act of* 1922"—						
Tully River Mill	..			464,602	4	10
Under "*The South Johnstone, Gin Gin, North Eton, and Mount Bauple Sugar Works Act of* 1927"—						
South Johnstone Mill	299,448	9	3			
Gin Gin Mill	21,406	0	0			
North Eton Mill	45,278	14	5			
Mount Bauple Mill	20,000	0	0			
				386,133	3	8
To General Loan Fund—						
Proserpine	..			91,310	8	10

Table No. XLIV.

ARROWROOT.—Return for Two Years showing Area and Produce, &c., of Arrowroot Tubers in Petty Sessions Districts.

Petty Sessions District.	1932.		1933.		Increase or Decrease—1933	
	Area.	Produce.	Area.	Produce.	Area.	Produce.
	Acres.	Tons.	Acres.	Tons.	Acres.	Tons.
Beaudesert	10	95	17	130	7	35
Bundaberg	3	13	4	20	1	7
Esk	5	8	..	..	— 5	— 8
Gayndah	1	1	..	..	— 1	— 1
Gympie	8	76	13	159	5	83
Kilcoy	19	154	1	4	— 18	— 150
Logan	262	2,480	318	4,060	56	1,580
Lowood	2	7	..	..	— 2	— 7
Marburg	2	4	5	11	3	7
Maroochy	24	139	31	259	7	120
Nanango	4	53	4	7	..	— 46
Rosewood	2	4	2	18	..	14
Southport	342	3,801	394	5,240	52	1,439
Tiaro	1	2	2	8	1	6
Toogoolawah	..	..	1	2	1	2
Toowoomba (Helidon)	1	6	..	..	— 1	— 6
Woodford	5	35	5	32	..	— 3
Total State	691	6,878	797	9,950	106	3,072

There were 231 producers of Arrowroot during 1933.

Table No. XLV.

Return showing Arrowroot Manufactured during the Year 1932-33.

Petty Sessions District.	Hands Employed.	Tuber.	Arrowroot.
	Number.	Tons.	Lb.
Beaudesert	98	4,820	1,066,081
Logan			
Southport			

Table No. XLVI.

TOBACCO.—Return for Two Years showing Area and Production of Tobacco.

Division and Petty Sessions District.	1932.				1933.				Increase or Decrease—1933.	
	Total Area.	Not Bearing	Bearing.	Produce Dried Leaf.	Total Area.	Not Bearing.	Bearing.	Produce Dried Leaf		
	Acres.	Acres.	Acres.	Lb.	Acres.	Acres.	Acres.	Lb.	Acres.	Lb.
oreton—										
Brisbane (A) ..	3	2	1	150	4	..	4	1,480	1	1,330
Brisbane (B) ..	68	68	..	..	20	..	20	20,000	— 48	20,000
Caboolture	13	4	9	2,007	8	2	6	338	— 5	— 1,669
Gatton	..	..	..	..	2	..	2	500	2	500
Lowood	3	2	1	118	1	..	1	500	— 2	382
Marburg	..	..	..	..	1	1	..	..	1	..
Rosewood	1	..	1	500	..	..	..	..	— 1	— 500
ide Bay—										
Biggenden	1	..	1	487	..	..	..	..	— 1	— 487
Bundaberg	26	21	5	1,318	4	..	4	1,613	— 22	295
Childers	3	3	..	..	..	..	..	..	— 3	..
Gympie	..	..	..	..	11	2	9	4,530	11	4,530
Maryborough ..	..	..	..	..	2	2	..	..	2	..
rt Curtis—										
Gladstone	44	6	38	10,926	50	2	48	19,006	6	8,080
Rockhampton ..	..	..	..	..	2	..	2	415	2	415
gecumbe—										
Ayr	51	12	39	26,192	35	19	16	7,433	— 16	— 18,759
Bowen	195	..	195	44,792	58	..	58	25,060	— 137	— 19,732
Charters Towers ..	20	5	15	5,557	33	16	17	11,565	13	6,008
Mackay	115	39	76	46,017	80	5	75	63,271	— 35	17,254
Proserpine	1	..	1	1,550	..	..	..	..	— 1	— 1,550
Ravenswood ..	5	..	5	1,680	6	..	6	2,800	1	1,120
Townsville	316	127	189	76,353	340	112	228	55,043	24	— 21,310
ckingham—										
Cairns	59	1	58	19,265	172	4	168	43,385	113	24,120
Cardwell	3	3	..	..	..	..	..	..	— 3	..
Chillagoe	4	..	4	173	14	1	13	3,978	10	3,805
Herberton	106	34	72	33,557	143	12	131	54,632	37	21,075
Ingham	83	27	56	33,191	2	..	2	300	— 81	— 32,891
Mareeba	3,756	1,960	1,796	963,814	3,013	786	2,227	1,046,571	— 743	82,757
k Peninsula—										
Cook	2	..	2	673	17	..	17	2,549	15	1,876
vns—										
Goondiwindi ..	10	..	10	16,000	..	..	..	..	— 10	— 16,000
Inglewood	381	154	227	151,340	330	72	258	187,940	— 51	36,600
Killarney	99	..	99	112,693	..	..	..	..	— 99	— 112,693
Stanthorpe	216	100	116	75,464	150	64	86	42,546	— 66	— 32,918
Texas	1,653	854	799	677,804	825	219	606	484,299	— 828	— 193,505
Toowoomba.. ..	..	..	..	..	36	36	..	..	36	..
Warwick	2	..	2	2,240	..	..	..	..	— 2	— 2,240
Total State	7,239	3,422	3,817	2,303,861	5,359	1,355	4,004	2,079,754	— 1,880	— 224,107

There were 481 growers.

Table No. XLVII.

VINES.

RETURN FOR TWO YEARS SHOWING AREA AND PRODUCTION OF VINES.

Year.	Vineyard.			Grapes Gathered.	Average per Acre (Bearing).
	Acres Bearing.	Acres not Bearing.	Total.		
				Lb.	Lb.
1932	1,586	282	1,868	5,296,980	3,340
1933	1,586	377	1,963	5,053,022	3,186

Table No. XLVIII.

RETURN FOR TWO YEARS SHOWING AREA UNDER VINES AND PRODUCTION OF GRAPES IN THE PRINCIPAL DISTRICTS OF THE STATE.

Petty Sessions District.	Area under Vines.							1932.	1933.
	1932.			1933.			Increase or Decrease —		
	Bearing.	Not Bearing.	Total Area.	Bearing.	Not Bearing.	Total Area.		Grapes Gathered.	Grapes Gathered.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Lb.	Lb.
Brisbane (A)	334	28	362	289	47	336	— 26	443,137	578,019
Brisbane (B)	4	1	5	5	...	5	...	10,700	34,410
Charters Towers	10	...	10	19	...	19	9	47,103	50,486
Chinchilla	2	...	2	4	...	4	2	44,900	44,900
Herberton	8	...	8	7	...	7	— 1	14,330	15,680
Lowood	29	...	29	35	7	42	13	206,000	303,894
Maryborough	20	2	22	22	1	23	1	23,743	19,842
Oakey	5	...	5	5	1	6	1	14,332	12,940
Rockhampton	22	6	28	25	5	30	2	83,893	91,332
Roma	402	25	427	393	47	440	13	662,351	679,045
Stanthorpe	662	192	854	707	261	968	114	3,543,556	3,065,656
Toogoolawah	2	2	4	4	...	4	...	5,070	11,240
Toowoomba	8	...	8	6	...	6	— 2	28,722	29,371
Warwick	18	...	18	18	.	18	...	25,371	22,055
Wynnum	7	...	7	5	1	6	— 1	20,252	22,080
All other Districts	53	26	79	42	7	49	— 30	123,520	72,072
Totals	1,586	282	1,868	1,586	377	1,963	95	5,296,980	5,053,022

Table No. XLIX.

RETURN FOR FIVE YEARS SHOWING THE AVERAGE PRODUCTION OF GRAPES IN CERTAIN PETTY SESSIONS DISTRICTS OF THE STATE.

Petty Sessions District.	1929. Average per Acre.	1930. Average per Acre.	1931. Average per Acre.	1932. Average per Acre.	1933. Average per Acre.
	Lb.	Lb.	Lb.	Lb.	Lb.
Brisbane (A)	1.873	1,451	1,482	1,327	1,533
Roma	1,683	2,044	2,467	1,648	1,685
Stanthorpe	3,360	4,924	4,866	5,353	5,012
Toowoomba	3,317	3,686	4,361	3.590	4,787
Warwick	1,462	1,387	2,907	1,410	1,410
State	2,616	1,533	3,248	3,340	3,186

Table No. L.

WINE.

RETURN FOR FIVE YEARS SHOWING NUMBER OF MAKERS, WINE MADE, AND WINE SPIRIT DISTILLED.

Year.	Number of Makers.	Quantity of Wine Made.	Quantity of Wine Spirit Distilled.
		Gallons.	Gallons.
1929	56	48,174	583
1930	50	48,899	3,612
1931	47	41,456	3,663
1932	39	35,301	1,488
1933	38	31,796	2,606

Table No. LI.

RETURN SHOWING THE PRINCIPAL DISTRICTS IN WHICH WINE WAS MADE DURING THE YEAR 1933.

Petty Sessions District.	Number of Makers.	Quantity of Wine Made.	Quantity of Wine Spirit Distilled.
		Gallons.	Gallons.
Maryborough	4	750	...
Toowoomba	7	1,780	...
Roma	2	24,168	...
Stanthorpe	2	1,685	...
All other Districts	23	3,413	...
Totals	38	31,796	2,606

Table No. LII.

BANANAS.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCTION OF BANANAS IN THE PRINCIPAL DISTRICTS OF THE STATE.

Petty Sessions District.	Area.				Produce.		Increase or Decrease — 1933.	
	1932.	Bearing, 1933.	Not yet Bearing, 1933.	Total, 1933.	1932.	1933.	Area.	Produce.
	Acres.	Acres.	Acres.	Acres.	Bunches.	Bunches.	Acres.	Bunches.
Brisbane (A) ..	280	195	196	391	42,073	87,618	111	45,545
Bundaberg ...	198	174	42	216	39,426	50,359	18	10,933
Caboolture ...	370	147	177	324	61,283	33,966	— 46	— 27,317
Cairns	216	132	30	162	42,951	19,305	— 54	— 23,646
Cleveland	213	120	131	251	24,112	33,020	38	8,908
Gympie	2,377	1,334	656	1,990	417,682	393,073	— 387	— 24,609
Kilcoy	156	67	28	95	32,717	10,857	— 61	— 21,860
Logan	510	407	279	686	82,788	118,473	176	35,685
Mackay	108	78	25	103	23,929	15,806	— 5	— 8,123
Maroochy ...	2,104	1,305	1,077	2,382	455,313	373,177	278	— 82,136
Maryborough ...	112	68	18	86	13,577	11,378	— 26	— 2,199
Redcliffe	832	478	326	804	143,815	162,601	— 28	18,786
Rockhampton ...	327	199	109	308	50,682	124,828	— 19	74,146
Southport	1,576	1,302	681	1,983	261,099	430,139	407	169,040
Tiaro	199	104	37	141	27,917	12,275	— 58	— 15,642
Woodford	434	273	167	440	90,807	80,240	6	— 10,567
Wynnum	73	66	31	97	13,907	17,920	24	4,013
All other Districts	504	328	139	467	45,805	52,470	— 37	6,665
Totals ...	10,589	6,777	4,149	10,926	1,869,883	2,027,505	337	157,622

Table No. LIII.

RETURN SHOWING THE AVERAGE YIELD OF BANANAS IN THE PRINCIPAL DISTRICTS OF THE STATE DURING THE YEAR 1933.

	Average per Acre—Bunches.		Average per Acre—Bunches.
Brisbane (A)	449	Logan	291
Bundaberg	289	Maroochy	286
Caboolture	231	Redcliffe	340
Cairns	146	Rockhampton	627
Cleveland	275	Southport	330
Gympie	295	Tiaro	118
Kilcoy	162		

Table No. LIV.

PINEAPPLES.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCTION OF PINEAPPLES IN THE STATE.

Petty Sessions District.	1932.		1933.				Increase or Decrease—1933.	
	Area.	Produce.	Bearing.	Not yet Bearing.	Total Area.	Produce.	Area.	Produce.
	Acres.	Dozen.	Acres.	Acres.	Acres.	Dozen.	Acres.	Dozen.
Bowen	145	12,975	137	19	156	22,323	11	9,348
Brisbane (A) ...	384	104,989	361	80	441	97,724	57	— 7,265
Brisbane (B) ...	260	39,519	216	58	274	36,717	14	— 2,802
Caboolture	590	119,397	475	151	626	139,849	36	20,452
Cleveland	773	122,852	517	242	759	143,430	— 14	20,578
Gympie	535	100,453	381	117	498	124,788	— 37	24,335
Logan	124	16,525	88	32	120	26,905	— 4	10,380
Maroochy	1,954	500,989	1,468	361	1,829	596,195	— 125	95,206
Maryborough ...	168	36,062	176	50	226	37,169	58	1,107
Rockhampton ...	235	34,110	189	46	235	36,827	...	2,717
Townsville ...	156	26,572	121	8	129	25,045	— 27	— 1,527
Wynnum	129	16,398	87	37	124	16,487	— 5	89
All other Districts	409	45,029	335	137	472	51,841	63	6,812
Total	5,862	1,175,870	4,551	1,338	5,889	1,355,300	27	179,430

N.B.—Brisbane (B) refers to South Brisbane.

Table No. LV.

ORANGES.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCTION OF ORANGES IN THE PRINCIPAL DISTRICTS OF THE STATE.

Petty Sessions District.	Total Area.		Bearing, 1933.	Not yet Bearing, 1933.	Produce.		Increase or Decrease—1933.	
	1932.	1933.	Area.	Area.	1932.	1933.	Area.	Produce.
	Acres.	Acres.	Acres.	Acres.	Bushels.	Bushels.	Acres.	Bushels.
Allora	17	22	22	...	2,500	2,000	5	– 500
Bundaberg	34	31	29	2	4,758	3,709	– 3	– 1,049
Caboolture	95	67	44	23	8,805	7,905	– 28	– 900
Cairns	81	36	26	10	6,153	3,471	– 45	– 2,682
Cardwell	172	204	144	60	13,969	17,966	32	3,997
Charters Towers	65	59	53	6	3,834	3,354	– 6	– 480
Childers	74	37	25	12	6,106	3,650	– 37	– 2,456
Emerald	21	23	17	6	2,200	2,400	2	200
Esk	41	57	55	2	1,506	6,187	16	4,681
Gatton	90	105	62	43	11,160	13,428	15	2,268
Gayndah	121	156	99	57	15,242	12,969	35	– 2,273
Gladstone	43	42	38	4	1,572	1,794	– 1	222
Gympie	51	55	44	11	2,409	3,006	4	597
Ingham	13	20	13	7	1,339	2,295	7	956
Logan	83	71	65	6	5,581	6,428	– 12	847
Lowood	21	25	16	9	1,401	2,220	4	819
Mackay	62	68	48	20	4,801	4,683	6	– 118
Maroochy	1,060	932	788	144	99,567	86,759	–128	– 12,808
Maryborough	511	519	395	124	61,457	43,904	8	– 17,553
Proserpine	24	28	24	4	3,246	1,613	4	– 1,633
Redcliffe	30	33	29	4	2,598	2,012	3	– 586
Rockhampton	275	252	200	52	25,830	23,703	– 23	– 2,127
Roma	54	39	27	12	2,750	3,842	– 15	1,092
Southport	119	91	74	17	11,308	9,255	– 28	– 2,053
Toowoomba { Helidon ...	16	30	21	9	1,893	4,034	14	2,141
Toowoomba { Toowoomba ..	11	21	14	7	475	2,133	10	1,658
All other Districts	438	401	324	77	19,535	19,676	– 37	141
Totals	3,622	3,424	2,696	728	321,995	294,396	–198	– 27,599

Table No. LVI.

MANGOES.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCTION OF MANGOES IN THE PRINCIPAL DISTRICTS OF THE STATE.

Petty Sessions District.	Total Area.		Bearing, 1933.	Not yet Bearing, 1933.	Produce.		Increase or Decrease — 1933.	
	1932.	1933.			1932.	1933.		
	Acres.	Acres.	Acres.	Acres.	Bnshels.	Bushels.	Acres.	Bushels.
Bowen	35	35	26	9	3,922	2,005	...	– 1,917
Gladstone	3	3	2	1	513	204	...	– 309
Gympie	3	4	1	3	681	502	1	– 179
Logan	12	9	8	1	1,395	235	– 3	– 1,160
Mackay	23	22	17	5	3,877	1,563	– 1	– 2,314
Mount Morgan	2	3	3	...	457	216	1	– 241
Proserpine	14	16	16	...	3,170	367	2	– 2,803
Rockhampton	24	19	18	1	2,950	1,318	– 5	– 1,632
Somerset	6	6	4	2	1,340	1,690	...	350
Tiaro	1	56	56	...	290	1,581	55	1,291
Townsville	6	7	7	...	1,445	636	1	– 809
All other Districts	31	28	20	8	2,995	809	– 3	– 2,186
Totals	160	208	178	30	23,035	11,126	48	– 11,909

Table No. LVII.

STRAWBERRIES.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCTION IN THE PRINCIPAL DISTRICTS OF THE STATE.

Petty Sessions District.	Area.		Produce.		Increase or Decrease —	
	1932.	1933.	1932.	1933.	1933.	1933.
	Acres.	Acres.	Quarts.	Quarts.	Acres.	Quarts.
Brisbane (A)	8	8	6,352	7,080	...	728
Brisbane (B)	1	2	300	988	1	688
Cleveland	56	72	55,898	99,747	16	43,849
Gympie	2	...	890	...	— 2	— 890
Logan	...	1	...	840	1	840
Maroochy	30	26	36,824	41,141	— 4	4,317
Redcliffe	2	1	330	289	— 1	— 41
Rockhampton	5	2	2,000	975	— 3	— 1,025
Southport	1	1	500	900	...	400
Toowoomba	1	1	100	112	...	12
Townsville	1	1	100	150	...	50
Wynnum	7	11	8,373	6,510	4	— 1,863
Totals	114	126	111,667	158,732	12	47,065

N.B.—Brisbane (B) refers to South Brisbane.

Table No. LVIII.

APPLES.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCTION OF APPLES IN THE PRINCIPAL DISTRICTS OF THE STATE.

Petty Sessions District.	Area.		Increase or Decrease — 1933.	Bearing, 1933.	Not Bearing, 1933.	Produce.		Increase or Decrease — 1933.
	1932.	1933.				1932.	1933.	
	Acres.	Acres.	Acres.	Acres.	Acres.	Bushels.	Bushels.	Bushels.
Herberton	1	1	...	1	...	40	10	— 30
Stanthorpe	4,538	4,972	434	3,315	1,657	223,908	284,659	60,751
Toowoomba	3	2	— 1	2	...	468	248	— 220
Warwick	197	224	27	170	54	9,149	13,455	4,306
Other Districts	2	...	— 2	...	...	...	...	...
Totals	4,741	5,199	458	3,488	1,711	233,565	298,372	64,807

Table No. LIX.

OTHER FRUITS.

RETURN SHOWING THE AREA AND PRODUCTION OF OTHER FRUITS DURING THE YEAR 1933.

—	Bearing.	Not Bearing.	Yield.
	Acres.	Acres.	
Almonds	...	...	...
Apricots	97	54	7,145 bushels
Cherries	4	...	241 bushels
Custard apples	231	15	28,846 bushels
Figs	12	...	61 bushels
Lemons	111	35	13,932 bushels
Nectarines	47	...	3,519 bushels
Olives	...	1	...
Passion fruit	118	..	9,936 bushels
Papaws	632	257	145,177 dozen
Peaches	1,398	361	104,894 bushels
Pears	227	43	21,542 bushels
Persimmons	6	...	307 bushels
Plums	1,054	310	80,391 bushels
Quinces	8	...	602 bushels
Water Melons	261	...	678 tons

Table No. LX.

OTHER VEGETABLES.

RETURN FOR TWO YEARS SHOWING AREA AND PRODUCTION OF OTHER VEGETABLES.

Other Vegetables.		1932.		1933.	
		Acres.	Produce.	Acres.	Produce.
Pulse	Beans	19	211 bushels	8	867 bushels
	Peas	40	935 bushels	112	2,786 bushels
Green	Beans	1,033	76,745 bags	1,407	108,246 bags
	Peas	829	55,354 bags	876	55,204 bags
Cabbages and Cauliflowers		1,353	293,497 dozen	1,257	278,669 dozen
Cucumbers		345	187.990 dozen	285	168,713 dozen
Onions		971	59,470 cwt.	773	41,219 cwt.
Tomatoes		3,947	319,278 bushels	4,430	398,398 bushels
Turnips		550	3,947 tons	111	441 tons

Table No. LXI.

PRINCIPAL OTHER CROPS.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCTION OF OTHER CROPS.

—	1932.		1933.	
	Acres.	Produce.	Acres.	Produce.
Broom millet	210	117,381 lb. straw	476	291,346 lb. straw
Canary seed	7,886	2,763,012 lb.	10,293	4,961,210 lb.
Cocoanuts	372	18,900 dozen	322	12,320 dozen
Grass seed	1,456	30,049 bushels	2,790	41,002 bushels
Lucerne seed	63	11,340 lb.	50	2,720 lb.
Mangold wurzel	214	1,150 tons	244	1,453 tons
Millet seed	276	5,618 bushels	738	18,263 bushels
Peanuts	2.298	1,239,268 lb.	2,630	2,698,950 lb.

Table No. LXII.

PASTURAGE AND OTHER FODDER CROPS.

RETURN FOR FIVE YEARS SHOWING THE AREA UNDER PASTURAGE.

	1929. Acres.	1930. Acres.	1931. Acres.	1932. Acres.	1933. Acres.
Hay	49,745	52,228	59,601	64,076	92,943
Green forage	208,624	217,282	309,957	392,762	311,462
Artificially sown pasture	639,871	661,839	718,700	732,095	777,706
Total	898,240	931,349	1,088,258	1,188,933	1,182,11

Table No. LXIII.

HAY.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCTION OF HAY CROPS.

Hay Crops.	Area.		Increase or Decrease — 1933.	Produce.		Increase or Decrease — 1933.
	1932.	1933.		1932.	1933.	
	Acres.	Acres.	Acres.	Tons.	Tons.	Tons.
Wheat	5,498	6,058	560	4,974	6,611	1,637
Oats	2,724	4,280	1,556	2,698	4,654	1,956
Lucerne	52,925	77,473	24,548	70,223	125,082	54,859
Other	2,929	5,132	2,203	4,209	7,903	3,694
Totals	64,076	92,943	28,867	82,104	144,250	62,146

Table No. LXIV.

ARTIFICIALLY SOWN PASTURE.

RETURN FOR TWO YEARS SHOWING THE AREA UNDER ARTIFICIALLY SOWN PASTURES.

Petty Sessions District.	1932.	1933.	Increase, 1933.	Decrease, 1933.
	Acres.	Acres.	Acres.	Acres.
Atherton	53,901	51,098	...	2,803
Beaudesert	22,590	22,832	242	...
Chinchilla	7,209	9,105	1,896	...
Crow's Nest	9,657	10,323	666	...
Dalby	42,922	52,151	9,229	...
Dugandan	5,929	6,488	559	...
Eidsvold	6,955	10,968	4,013	...
Gatton	7,409	10,550	3,141	...
Gayndah	37,447	38,597	1,150	...
Gladstone	24,849	27,419	2,570	...
Gympie	135,997	142,173	6,176	...
Herberton	7,887	10,265	2,378	...
Maroochy	56,469	56,162	...	307
Monto	15,835	20,033	4,198	...
Mount Morgan	4,276	8,907	4,631	...
Nanango	49,765	37,430	...	12,335
Oakey — Cooyar	9,184	9,793	609	...
Oakey — Oakey	4,872	12,571	7,699	...
Redcliffe	14,242	16,707	2,465	...
Rockhampton	37,198	31,310	...	5,888
Southport	38,942	42,855	3,913	...
Tiaro	6,369	8,406	2,037	...
Toowoomba — Helidon	5,461	4,317	...	1,144
Toowoomba — Toowoomba	222	79	...	143
Wienholt	53,413	69,352	15,939	...
Woodford	28,628	30,705	2,077	...
All other Districts	44,467	37,110	...	7,357
Totals State	732,095	777,706	45,611	...

Table No. LXV.

RETURN SHOWING THE TOTAL EXTENT OF LAND CULTIVATED FOR HAY, TOGETHER WITH THE YIELD OF HAY IN EACH OF THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE, AND THE AVERAGE YIELD PER ACRE DURING THE YEAR 1933.

PETTY SESSIONS DISTRICTS.	HAY.									
	Wheat.		Oats.		Lucerne.		Other.		Total.	
	Acres.	Tons.	Acres.	Tons.	Acres.	Tons.	Acres.	Tons.	Acres.	Tons.
Allora	40	10	..	..	4,228	3,550	..	..	4,268	3,560
Beaudesert ..	4	8	31	14	2,084	6,901	29	40	2,148	6,963
Clifton	480	416	149	100	5,860	5,010	70	40	6,559	5,566
Crow's Nest ..	79	84	29	28	2,140	2,950	25	39	2,273	3,101
Dugandan ..	15	15	9	7	5,535	12,182	307	569	5,866	12,773
Esk	..	..	38	49	617	1,388	76	151	731	1,588
Gatton	409	437	270	264	5,426	8,985	96	117	6,201	9,803
Gayndah	4	3	32	13	785	1,560	172	327	993	1,903
Harrisville ..	206	291	571	656	5,260	8,788	676	987	6,713	10,722
Ipswich	..	..	23	28	692	1,285	69	72	784	1,385
Killarney	..	..	10	7	1,730	2,011	7	7	1,747	2,025
Laidley	275	327	91	99	5,366	10,634	151	282	5,883	11,342
Lowood	10	12	25	36	2,281	3,813	13	24	2,329	3,885
Marburg	13	16	15	18	703	1,329	158	224	889	1,587
Monto	9	40	140	306	1,601	2,370	31	107	1,781	2,823
Nanango	4	4	206	229	4,054	7,362	153	264	4,417	7,859
Oakey { Cooyar ..	..	..	5	6	329	688	7	7	341	701
Oakey { Oakey ..	429	388	465	348	2,646	3,793	741	792	4,281	5,321
Pittsworth ..	625	712	135	121	1,848	3,358	285	300	2,893	4,491
Rockhampton ..	29	34	132	187	589	962	309	435	1,059	1,618
Roma	1,910	2,272	79	124	62	65	132	252	2,183	2,713
Rosewood	10	5	52	55	2,768	4,298	276	414	3,106	4,772
Toogoolawah ..	12	14	35	44	2,700	4,723	37	30	2,784	4,811
Toowoomba { Helidon	17	14	2	1	944	1,761	21	63	984	1,839
Toowoomba { Twba	388	327	482	457	5,221	5,275	288	405	6,379	6,464
Warwick	308	286	144	141	4,518	4,966	64	116	5,034	5,509
Wienholt	..	..	7	10	4,724	8,564	29	27	4,760	8,601
All Other Districts	782	896	1,103	1,306	2,762	6,511	910	1,812	5,557	10,525
Grand Total { 1933	6,058	6,611	4,280	4,654	77,473	125,082	5,132	7,903	92,943	144,250
Grand Total { 1932	5,498	4,974	2,724	2,698	52,925	70,223	2,929	4,209	64,076	82,104
Increase, 1933 ..	560	1,637	1,556	1,956	24,548	54,859	2,203	3,694	28,867	62,146
Decrease, 1933 ..	..	..	..	..	..	..	..	..	..	..
Average Yield per acre	1·09		1·09		1·61		1·54		1·55	

Table No. LXVI.

RETURN SHOWING THE TOTAL EXTENT OF LAND CULTIVATED FOR GREEN CROPS IN EACH OF THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE DURING THE YEAR 1933.

PETTY SESSIONS DISTRICTS.		GREEN CROPS.				
		Wheat.	Oats.	Lucerne.	Other.	Total of all Kinds.
		Acres.	Acres.	Acres.	Acres.	Acres.
Allora		1,511	3,886	1,865	1,817	9,079
Beaudesert		106	1,982	1,595	1,976	5,659
Biggenden		32	790	270	1,334	2,426
Brisbane (A)		141	203	213	2,361	2,918
Chinchilla		548	702	..	582	1,832
Clifton		3,759	4,106	4,721	7,993	20,579
Crow's Nest		866	3,897	465	2,619	7,847
Dalby		2,365	6,276	105	4,205	12,951
Dugandan		37	2,553	281	2,589	5,460
Esk		16	571	255	945	1,787
Gatton		472	1,649	671	3,427	6,219
Gayndah		223	2,417	578	5,716	8,934
Gympie		32	867	89	2,531	3,519
Harrisville		139	2,004	1,185	2,239	5,567
Inglewood		510	816	47	1,287	2,660
Ipswich		25	616	327	770	1,738
Killarney		235	1,901	712	984	3,832
Laidley		515	1,044	173	1,652	3,384
Lowood		133	1,036	39	2,775	3,983
Marburg		120	946	277	3,925	5,268
Monto		77	704	414	490	1,685
Nanango		636	12,393	3,487	8,771	25,287
Oakey	Cooyar	240	1,016	277	835	2,368
	Oakey	8,323	12,698	2,411	13,475	36,907
Pittsworth		9,363	4,460	2,475	11,079	27,377
Redcliffe		129	167	85	1,929	2,310
Roma		593	170	334	518	1,615
Rosewood		90	1,569	306	2,971	4,936
Toogoolawah		111	1,665	1,168	2,084	5,028
Toowoomba	Helidon	140	718	90	1,289	2,237
	Toowoomba	2,846	6,942	4,094	6,189	20,071
Warwick		1,264	6,571	6,048	5,879	19,762
Wienholt		450	12,770	2,723	9,739	25,682
All Other Districts		1,858	3,814	1,686	13,197	20,555
Grand Total	1933	37,905	103,919	39,466	130,172	311,462
	1932	73,408	107,619	48,656	163,079	392,762
Increase, 1933		..	..	..	..	..
Decrease, 1933		35,503	3,700	9,190	32,910	81,303

Table No. LXVII.

ENSILAGE.

Return for Two Years Showing Number of Makers and Ensilage Made in the Several Petty Sessions Districts of the State.

Petty Sessions District.	1932.		1933.		Increase, 1933.	Decrease, 1933.
	No. of Makers.	Tons.	No. of Makers.	Tons.	Tons.	Tons.
Atherton	6	240	9	617	377	...
Beaudesert	4	213	6	395	182	...
Brisbane (A)	2	120	1	30	...	90
Brisbane (B)	13	885	11	1,140	255	...
Cairns	...	...	1	10	10	...
Charters Towers	1	8	3	75	67	...
Cleveland	1	50	1	80	30	...
Clifton	1	80	1	60	...	20
Dalby	1	30	...	...	...	30
Dugandan	8	329	3	240	...	89
Esk	1	100	4	153	53	...
Gatton	1	150	1	260	110	...
Gayndah	4	205	5	273	68	...
Gladstone	1	70	4	75	5	...
Goodna	1	60	1	280	220	...
Gympie	...	...	2	70	70	...
Harrisville	3	66	1	80	14	...
Herberton	...	...	1	50	50	...
Ingham	1	40	...	...	...	40
Inglewood	1	90	1	100	10	...
Ipswich	2	170	1	60	...	110
Kilcoy	2	60	2	56	...	4
Kilkivan	...	...	1	7	7	...
Laidley	3	215	1	6	...	209
Logan	...	...	2	95	95	...
Marburg	6	425	11	324	...	101
Maroochy	5	417	3	520	103	...
Maryborough	2	130	2	100	...	30
Mitchell	...	...	1	2	2	...
Monto	...	...	1	42	42	...
Mount Morgan	...	...	1	15	15	...
Nanango	10	472	11	558	86	...
Oakey	...	...	2	350	350	...
Redcliffe	2	120	3	300	180	...
Roma	2	14	2	140	126	...
Rockhampton	1	12	1	75	63	...
Rosewood	...	...	1	100	100	...
Southport	3	300	2	84	...	216
St. Lawrence	...	...	1	15	15	...
Toogoolawah	1	25	...	...	...	25
Toowoomba (Helidon)	1	50	...	...	...	50
Townsville	14	649	11	509	...	140
Warwick	...	...	2	60	60	...
Wienholt	...	...	2	150	150	...
Woodford	4	310	9	584	274	...
Wynnum	4	200	5	375	175	...
Totals	112	6,305	134	8,515	2,210	...

Value of Ensilage made 1932, £12,668; 1933, £12,971.

N.B.—Brisbane (B) refers to South Brisbane.

Table No. LXVIII.

RETURN SHOWING THE TOTAL EXTENT OF LAND UNDER CULTIVATION, AND THE AREA UNDER EACH DESCRIPTION OF CROP, IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE DURING THE YEAR 1933.

Divisions.	Total Extent of Land under Permanent Pasture with Artificially Sown Grasses.	Total Extent of Land under Cultivation.	Land in Fallow, Lying Idle.	Total Extent of Land under Crop.	GRAIN CROPS.							POTATOES.		Pumpkins.	COTTON.		Sugar-cane.	Arrowroot.	Tobacco.	COFFEE.		Hay (All Kinds).	Green Fodder.	VINES.		Bananas.	Pineapples.	Oranges.	Gardens and Orchards.	Other Crops.
					Wheat.	Oats.	BARLEY.		Maize.	Rye.	Rice.	English.	Sweet.		Bearing.	Not Bearing.				Bearing.	Not Bearing.			Bearing.	Not Bearing.					
							Malting.	Other.																						
	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.
Moreton Division.																														
Brisbane (A)	1,793	7,395	592	6,803	..	..	..	..	105	..	..	144	87	404	18	2	..	..	4	..	..	51	2,918	289	47	391	441	27	839	1,036
Brisbane (B)	345	2,292	249	2,043	..	..	..	..	16	..	..	20	..	26	..	..	..	..	20	..	..	88	1,198	5	..	12	274	11	177	196
Beaudesert	22,832	13,915	1,581	12,334	..	..	..	..	3,535	..	..	257	42	591	14	2	..	17	..	..	..	2,148	5,659	..	..	37	1	16	1	14
Caboolture	1,810	1,740	323	1,417	..	..	..	..	34	..	..	47	10	29	5	..	2	..	8	..	..	1	236	1	..	324	626	67	4	23
Cleveland	43	3,298	375	2,923	..	..	..	..	3	..	..	14	14	25	1	..	..	..	..	..	..	1	274	4	3	251	759	40	483	1,051
Crow's Nest	10,323	20,599	3,494	17,105	209	46	44	66	5,984	6	..	400	1	180	..	..	..	..	..	..	..	2,273	7,847	..	..	..	..	28	21	..
Dugandan	6,488	22,930	1,871	21,059	25	12	3	4	7,433	1	..	889	7	933	197	39	..	..	..	..	..	5,866	5,460	..	..	6	2	1	8	173
Esk	3,154	4,559	673	3,886	..	..	..	4	866	..	..	132	33	105	26	36	..	..	..	..	..	731	1,787	1	..	60	1	57	14	33
Gatton	10,550	26,369	2,442	23,927	50	..	..	..	6,405	..	..	1,177	297	2,495	387	30	..	..	2	..	..	6,201	6,219	2	2	..	..	105	134	421
Goodna	18	356	32	324	..	..	..	..	61	..	..	12	..	18	..	..	..	..	..	..	..	67	158	..	..	..	..	..	..	8
Harrisville	879	18,686	1,698	16,988	..	..	..	..	3,584	..	..	209	24	619	159	46	..	..	..	..	..	6,713	5,567	..	..	1	..	2	33	31
Ipswich	76	4,002	535	3,467	..	..	..	..	572	..	..	130	11	36	89	23	..	..	..	..	..	784	1,738	..	..	9	44	11	6	14
Kilcoy	3,157	2,925	481	2,444	..	..	..	..	485	..	..	89	24	84	14	..	..	1	..	..	..	256	1,354	..	..	95	1	3	..	38
Laidley	304	21,009	2,424	18,585	..	..	..	..	6,475	..	..	866	107	1,201	209	137	..	..	..	..	..	5,883	3,384	1	..	2	1	1	1	319
Logan	1,062	6,376	440	5,936	..	40	..	..	550	..	..	700	143	53	..	..	1,362	318	..	..	..	105	1,276	5	..	686	120	71	177	330
Lowood	108	13,893	1,142	12,751	..	..	..	..	4,194	..	..	778	130	885	180	50	..	..	1	..	..	2,329	3,983	35	7	..	18	25	1	135
Marburg	642	9,011	616	8,395	..	..	..	..	1,708	..	..	151	35	133	67	45	..	5	1	..	..	889	5,268	1	1	..	10	..	10	71
Maroochy	56,162	14,180	1,287	12,893	..	..	..	..	286	..	..	39	18	10	..	..	5,856	31	..	5	2	22	1,266	..	..	2,382	1,829	932	116	99
Redcliffe	16,707	4,452	426	4,026	..	..	..	..	246	..	..	149	59	128	1	..	20	..	..	..	..	60	2,310	1	..	804	84	33	48	103
Rosewood	64	12,713	1,455	11,258	..	4	..	..	2,523	..	..	227	19	199	179	47	..	2	..	..	..	3,106	4,936	..	..	..	..	..	..	16
Southport	42,855	4,234	171	4,063	..	..	..	..	375	..	..	305	24	46	..	..	48	394	..	..	..	13	702	..	..	1,983	36	91	21	27
Toogoolawah	1,294	11,767	340	11,427	..	..	..	..	2,471	..	..	391	124	458	68	..	..	1	..	..	..	2,784	5,028	4	..	12	..	2	4	80
Woodford	30,705	2,487	232	2,255	..	..	..	..	375	..	..	61	19	51	4	2	20	5	..	..	..	10	1,234	..	..	440	15	9	5	5
Wynnum	34	836	44	792	..	..	..	..	4	..	..	10	4	7	..	..	..	..	..	..	..	..	371	5	1	97	124	1	88	80
Cooyar	9,793	5,376	864	4,512	41	25	3	3	1,343	..	..	228	..	154	..	..	..	..	..	..	..	341	2,368	..	..	..	..	1	4	1
Helidon	4,317	6,000	865	5,135	..	..	..	..	1,127	..	..	237	61	434	15	..	..	..	..	..	..	984	2,237	..	..	..	..	30	1	9
Total Moreton	225,515	241,400	24,652	216,748	325	127	50	77	50,758	7	..	7,660	1,273	9,804	1,633	459	7,308	774	36	5	2	41,706	74,778	354	61	7,592	4,386	1,564	2,196	4,313
Wide Bay Division.																														
Biggenden	..	4,213	933	3,280	..	..	..	..	8	..	..	2	..	16	723	91	..	..	..	..	..	..	2,426	..	..	9	..	..	5	..
Bundaberg	501	37,583	3,707	33,876	..	..	..	..	679	..	..	83	20	11	141	10	31,619	4	4	..	..	80	867	2	..	216	62	31	38	9
Childers	1,546	15,327	1,308	14,019	..	..	..	..	217	..	..	3	..	1	153	49	15,479	..	..	..	..	..	74	..	..	..	1	37	5	..
Eidsvold	10,968	6,825	1,461	5,362	..	..	..	..	466	..	..	30	59	132	1,763	1,595	..	..	..	..	..	183	1,128	..	..	..	..	1	4	1
Gayndah	38,597	23,595	3,089	20,506	35	..	..	..	2,075	..	..	80	17	307	3,820	2,622	..	..	..	..	..	993	8,934	..	..	11	11	156	35	1,410
Gin Gin	912	11,522	1,764	9,758	..	..	..	..	1,071	..	..	26	5	9	225	52	7,559	..	..	..	..	103	659	1	..	2	9	2	19	16
Gympie	142,173	8,715	658	8,077	7	..	..	..	1,225	..	..	128	24	56	24	1	151	13	11	..	..	160	3,519	1	..	1,990	498	55	33	181
Kilkivan	1,385	2,164	443	1,721	..	..	..	..	275	..	..	45	19	55	118	33	..	..	..	..	..	521	621	..	..	22	..	2	10	..
Maryborough	1,770	9,044	1,460	7,584	..	..	..	..	105	..	..	172	2	17	85	16	5,314	..	2	..	..	386	540	22	1	86	226	519	46	45
Mount Perry	65	169	57	112	..	..	..	..	8	..	..	1	4	..	76	..	..	..	..	..	..	5	16	..	..	..	..	..	..	2
Nanango	37,430	54,999	4,914	50,085	194	173	..	6	16,654	..	..	665	106	958	240	19	..	4	..	..	..	4,417	25,287	..	..	..	..	4	9	1,349
Tiaro	8,406	4,751	501	4,250	..	..	..	..	398	..	..	143	5	34	40	..	2,440	2	..	..	..	240	625	1	1	141	37	11	69	63
Wienholt	69,352	59,070	3,889	55,181	152	6	..	..	20,022	..	..	1,310	24	836	1,078	16	..	..	..	..	..	4,760	25,682	..	..	..	..	1	1	1,293
Total Wide Bay	313,105	237,975	24,164	213,811	388	179	..	6	43,205	..	..	2,688	285	2,432	8,486	4,504	60,562	23	17	..	..	11,848	70,378	27	2	2,477	844	819	274	4,369
Port Curtis Division.																														
Banana	..	4,248	210	4,038	240	..	..	..	57	..	..	12	..	52	1,155	1,380	..	..	..	..	..	299	770	2	..	..	..	6	2	63
Gladstone	27,419	5,469	1,004	4,465	..	..	..	..	723	..	..	268	36	141	849	257	..	..	50	..	..	327	1,301	6	..	64	47	42	89	265
Monto	20,033	21,529	1,671	19,658	..	..	..	..	1,242	..	..	99	2	207	10,752	4,070	..	..	..	..	..	1,781	1,685	..	..	..	..	2	13	5
Mount Morgan	8,907	52,319	1,916	50,403	340	..	..	..	395	..	..	14	4	33	41,134	7,348	..	..	..	..	..	204	839	..	..	..	11	17	4	60
Rockhampton	31,310	9,629	2,277	7,352	2	..	..	..	947	..	..	174	38	211	2,439	129	..	..	2	..	..	1,059	986	25	5	308	235	252	192	348
St. Lawrence	454	393	89	304	..	..	..	..	25	..	..	9	2	7	129	18	..	..	..	..	..	97	..	..	..	6	8	..	..	3
Total Port Curtis	88,103	93,587	7,167	86,420	582	..	..	..	3,389	..	..	576	82	651	56,458	13,202	..	..	52	..	..	3,767	5,581	33	5	378	301	319	300	744

Table No. LXVIII.—*continued.*

Divisions.	Total Extent of Land under Permanent Pasture with Artificially Sown Grasses.	Total Extent of Land under Cultivation.	Land in Fallow, Lying Idle, &c.	Total Extent of Land under Crop.	GRAIN CROPS.							POTATOES.		Pumpkins.	COTTON.		Sugar-cane.	Arrowroot.	Tobacco.	COFFEE.		Hay (All Kinds).	Green Fodder.	VINES.		Bananas.	Pineapples.	Oranges.	Gardens and Orchards.	Other Crops.
							BARLEY.																							
					Wheat.	Oats.	Malting.	Other.	Maize.	Rye.	Rice.	English.	Sweet.		Bearing.	Not Bearing.				Bearing.	Not Bearing.			Bearing.	Not Bearing.					
	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.
Edgecumbe Division.																														
Ayr	..	43,924	9,590	34,334	..	..	..	..	..	..	..	2	7	11	45	..	34,189	..	35	..	..	..	..	..	..	35	..	..	..	10
Bowen	..	3,584	1,211	2,373	..	..	..	..	131	..	..	55	4	430	13	3	249	..	58	..	..	..	151	..	..	15	156	43	44	1,021
Cape River	..	59	..	59	..	..	..	..	9	..	..	4	5	10	..	..	..	..	..	..	..	1	..	1	..	..	..	16	10	3
Charters Towers ..	..	199	1	198	..	..	..	..	..	..	..	4	1	3	2	..	..	..	33	..	..	1	57	19	..	..	..	59	14	5
Collinsville	..	8	..	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	..
Mackay	214	99,653	20,605	79,048	..	..	..	..	13	..	..	13	5	7	54	15	78,300	..	80	..	..	..	327	1	..	103	3	68	38	21
Proserpine	34	15,984	4,024	11,960	..	..	..	..	12	..	..	3	..	2	..	..	11,818	..	..	..	..	..	45	..	..	14	1	28	17	20
Ravenswood ..	..	11	..	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..	..	..	..	..	..	5	..	..
Townsville	4	1,634	430	1,204	..	..	..	..	27	..	..	104	8	55	5	4	206	..	340	..	..	22	119	..	..	50	129	16	54	65
Total Edgecumbe..	252	165,056	35,861	129,195	..	..	..	..	192	..	..	185	30	518	119	22	124,762	..	552	..	..	24	699	21	..	217	289	235	185	1,145
Rockingham Division.																														
Atherton	51,098	19,728	181	19,547	..	..	..	..	18,733	..	..	7	15	26	67	..	..	..	..	..	..	6	498	..	..	13	..	10	..	172
Cairns	909	41,284	4,048	37,236	..	..	..	..	95	..	..	10	12	2	45	3	36,638	..	172	..	..	..	2	..	..	162	43	36	6	10
Cardwell	97	13,366	1,182	12,184	..	..	..	..	20	..	..	4	3	7	33	5	11,760	..	..	..	..	..	13	..	..	46	8	204	1	80
Chillagoe	..	24	4	20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14	..	..	..	..	..	..	..	..	..	6	..
Herberton	10,265	723	165	558	..	..	..	..	282	..	..	12	7	1	..	..	..	..	143	..	..	27	64	7	..	..	..	4	11	..
Ingham	40	37,925	6,516	31,409	..	..	..	..	6	..	..	..	1	4	..	..	31,272	..	2	..	..	..	67	..	..	7	12	20	16	2
Innisfail	2	38,449	7,404	31,045	..	..	..	..	..	..	..	..	..	..	..	..	30,997	..	..	..	..	..	35	..	..	13	..	..	..	..
Mareeba	3,935	3,490	326	3,164	..	..	..	..	14	..	..	13	1	..	40	33	..	..	3,013	..	..	..	38	..	..	1	..	5	1	5
Total Rockingham	66,346	154,989	19,826	135,163	..	..	..	..	19,150	..	..	46	39	40	185	41	110,667	..	3,344	..	..	33	717	7	..	242	63	279	41	269
York Peninsula Division.																														
Coen	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cook	..	122	..	122	..	..	..	..	26	..	..	..	..	1	..	..	..	..	17	..	..	..	..	..	..	6	..	32	..	40
Douglas	2,910	9,708	1,069	8,639	..	..	..	..	..	..	..	..	..	..	..	..	8,611	..	..	..	..	..	10	..	..	..	..	9	9	..
Somerset	..	460	..	460	..	..	..	..	10	..	..	..	61	28	..	..	..	..	..	..	..	..	9	..	..	14	6	..	9	323
Total York Peninsula	2,910	10,290	1,069	9,221	..	..	..	..	36	..	..	..	61	29	..	..	8,611	..	17	..	..	..	19	..	..	20	6	41	18	363
Carpentaria Division.																														
Burke	..	4	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..
Cloncurry	..	21	1	20	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	3	11	3
Croydon	..	9	..	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	..
Etheridge	..	31	16	15	..	..	..	..	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..
Hughenden	..	44	17	27	..	..	..	..	..	..	..	4	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..	6	3	10
Julia Creek	..	4	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..
Mount Isa	..	6	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..
Norman	..	9	4	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..
Richmond	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..
Total Carpentaria	..	130	38	92	..	..	..	..	10	..	..	5	2	4	..	..	..	..	..	..	..	..	..	..	..	..	..	9	49	13
Central-Western Division.																														
Boulia	..	6	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..
Camooweal	..	5	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..
Diamantina	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Isisford	..	5	2	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..
Jundah	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Windorah	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Winton	..	4	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..
Total Central-Western	..	20	2	18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18	..

Divisions.	Total Extent of Land under Permanent Pasture with Artificially Sown Grasses	Total Extent of Land under Cultivation.	Land in Fallow, Lying Idle, &c.	Total Extent of Land under Crop.	GRAIN CROPS.							POTATOES.			COTTON.					COFFEE.				VINES.						
							BARLEY.																							
					Wheat.	Oats	Malting.	Other.	Maize.	Rye.	Rice.	English.	Sweet.	Pumpkins.	Bearing.	Not Bearing.	Sugar-cane.	Arrowroot.	Tobacco.	Bearing.	Not Bearing.	Hay (All Kinds).	Green Fodder.	Bearing.	Not Bearing.	Bananas.	Pineapples.	Oranges.	Gardens and Orchards.	Other Crops.
	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.
South-Western Division.																														
Adavale	..	3	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..
Augathella	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..
Bollon	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..
Charleville	7	86	..	86	..	..	..	..	..	..	..	1	..	5	..	..	..	..	..	..	..	10	39	1	..	..	..	13	13	4
Cunnamulla	..	53	4	49	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	..	..	..	..	..	..	24	..
Eulo	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hungerford	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Quilpie	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
St. George	..	51	17	34	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	1	26	5
Thargomindah	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total South-Western	7	197	21	176	..	..	..	..	..	..	..	1	..	5	..	..	..	..	..	..	..	35	39	3	..	..	..	14	70	9
Central Division.																														
Alpha	..	29	9	20	..	..	..	..	2	..	..	..	..	..	..	8	..	..	..	..	..	..	..	..	..	..	..	4	6	..
Aramac	..	8	..	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	..
Barcaldine	..	11	..	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11	..
Blackall	..	11	..	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11	..
Clermont	..	336	124	212	..	..	..	..	3	..	..	2	1	3	101	67	..	..	..	..	..	3	18	..	..	..	..	8	4	2
Emerald	..	237	91	146	..	..	..	..	..	..	..	2	..	1	94	22	..	..	..	..	..	..	..	1	..	..	..	23	2	1
Longreach	..	35	14	21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	21	..
Muttaburra	..	3	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..
Springsure	..	166	..	166	..	..	..	..	15	..	..	1	..	12	96	37	..	..	..	..	..	..	..	..	..	..	..	..	..	5
Tambo	..	5	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..
Taroom	..	120	24	96	..	..	..	..	9	..	..	1	..	..	56	3	..	..	..	..	..	2	9	..	..	..	..	..	..	16
Total Central	..	961	262	699	..	..	..	..	29	..	..	6	1	16	347	137	..	..	..	..	..	5	27	1	..	..	..	35	71	24
Maranoa Division.																														
Mitchell	4	1,628	183	1,445	1,280	..	..	..	..	..	..	1	..	1	5	..	..	..	..	..	..	37	119	..	..	..	..	..	1	1
Roma	184	28,494	4,466	24,028	18,685	151	..	4	37	..	..	1	..	16	498	332	..	..	..	..	..	2,183	1,615	393	47	..	..	39	5	22
Surat	..	8	..	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	..
Yeulba	..	58	10	48	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2	37	1	..	..	..	1	4	2
Total Maranoa	188	30,188	4,659	25,529	19,965	151	..	4	37	..	..	2	..	18	503	332	..	..	..	..	..	2,222	1,771	394	47	..	..	40	18	25
Downs Division.																														
Allora	26	49,993	7,816	42,177	21,891	136	826	88	4,780	..	..	..	..	..	..	..	..	..	..	..	..	4,268	9,079	..	..	..	..	22	..	1,087
Chinchilla	9,105	5,364	631	2,733	181	..	..	..	149	..	..	..	..	..	181	..	..	..	..	..	..	377	1,832	4	..	..	..	5	3	1
Clifton	1,637	96,330	9,333	86,997	36,671	360	2,560	1,052	11,149	40	..	..	..	20	..	..	..	..	..	..	..	6,559	20,579	1	..	..	..	..	3	8,003
Condamine	1,579	6,381	3,862	2,519	764	..	..	..	89	..	..	1	..	3	97	45	..	..	..	..	..	231	1,266	2	..	..	..	4	8	9
Dalby	52,151	32,382	5,876	28,506	12,484	503	111	15	1,052	..	..	21	..	112	99	135	..	..	..	..	..	682	12,951	1	..	..	..	3	..	337
Goondiwindi	..	810	503	307	136	..	15	..	..	..	..	8	..	3	..	..	..	..	..	..	..	106	22	..	..	..	..	8	..	9
Inglewood	1,526	8,481	2,538	5,943	1,911	196	40	19	64	..	..	2	..	39	32	13	..	..	330	..	..	608	2,660	1	..	..	..	1	7	20
Killarney	1,854	17,250	1,724	15,526	6,250	80	25	102	3,361	..	..	64	..	13	..	..	..	..	..	..	..	1,747	3,832	1	..	..	..	1	12	38
Oakey	12,571	108,549	12,839	95,710	41,733	1,730	244	234	8,257	..	..	110	16	244	30	..	..	..	..	..	..	4,281	36,907	5	1	..	..	3	11	1,904
Pittsworth	140	100,734	6,568	94,166	56,949	806	545	240	4,163	..	..	4	..	15	27	..	..	..	..	..	..	2,893	27,377	..	..	..	..	..	..	1,147
Stanthorpe	..	13,712	365	13,347	..	..	..	..	63	..	..	203	..	2	..	..	..	..	150	..	..	25	637	707	261	..	..	..	8,378	2,921
Texas	6	3,566	1,814	1,752	261	..	..	..	26	..	..	7	..	..	..	3	..	..	825	..	..	113	478	..	..	..	..	..	12	27
Toowoomba	79	51,473	6,689	44,784	9,297	502	1,260	361	5,509	..	..	190	2	10	6	..	..	..	36	..	..	6,379	20,071	6	..	..	..	21	36	1,098
Warwick	606	72,178	10,279	61,899	22,265	437	52	839	11,482	..	..	157	..	40	..	..	..	..	..	..	..	5,034	19,762	18	..	..	..	1	334	1,478
Total Downs	81,280	565,203	68,837	496,366	210,793	4,750	5,678	2,950	50,144	40	..	767	18	501	472	196	..	..	1,341	..	..	33,303	157,453	746	262	..	..	69	8,804	18,079
Grand Total 1933	777,706	1,499,996	186,558	1,513,438	232,053	5,207	5,728	3,037	166,948	47	..	11,936	1,791	13,518	68,203	18,893	311,910	797	5,359	5	2	92,943	311,462	1,586	377	10,926	5,889	3,424	12,044	29,353
Grand Total 1932	732,095	1,426,648	181,010	1,245,638	250,049	3,733	5,275	1,515	98,487	18	..	9,743	1,791	9,546	29,995	26,113	291,136	691	7,239	7	2	64,076	392,762	1,586	282	10,589	5,862	3,622	11,356	22,163
Increase, 1933	45,611	73,348	5,548	67,800	..	1,474	2,453	1,522	68,461	29	..	2,193	..	3,972	38,208	..	20,774	106	..	..	..	28,867	..	..	95	337	27	..	688	7,190
Decrease, 1933	..	..	..	..	17,996	..	..	..	..	..	..	..	..	..	..	7,220	..	..	1,880	2	..	..	81,300	..	..	..	..	198	..	..

Table No. LXIX.

RETURN SHOWING THE GROSS PRODUCE OF PRINCIPAL CROPS RAISED IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE DURING THE YEAR 1933.

Divisions.	QUANTITY OF PRODUCE.																				
	GRAIN CROPS.									POTATOES.		SUGAR-CANE.						VINES.			
	Wheat.	Oats.	BARLEY.		Maize.	Rye.	Rice.	Pumpkins.	Cotton.	English.	Sweet.	Area Crushed.	Weight Obtained.	Arrowroot (Tubers).	Tobacco (Cured Leaf.)	Coffee.	Hay (All Kinds).	Grapes Gathered.	Bananas.	Pineapples.	Oranges.
			Malting.	Other.																	
Moreton Division.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Tons.	Lb.	Tons.	Tons.	Acres.	Tons.	Tons.	Lb.	Lb.	Tons.	Lb.	Bunches.	Dozens.	Bushels.
Brisbane (A)	..	..	..	..	2,435	..	..	1,202	5,558	288	230	..	..	..	1,480	..	234	578,019	87,618	97,724	711
Brisbane (B)	..	..	..	..	411	..	..	50	..	44	..	..	..	..	20,000	..	316	34,410	1,500	36,717	1,093
Beaudesert	..	..	..	..	91,696	..	..	2,123	3,552	455	168	..	..	130	..	..	6,963	..	4,606	..	984
Caboolture	..	..	..	..	926	..	..	66	341	71	54	2	28	..	338	..	1	450	33,966	139,849	7,905
Cleveland	..	..	..	..	81	..	..	49	316	23	40	..	..	..	..	..	2	6,198	33,020	143,430	1,449
Crow's Nest	3,491	957	645	1,529	131,703	36	..	398	..	783	7	..	..	..	..	..	3,101	..	..	..	1,047
Dugandan	150	52	66	54	129,162	9	..	3,000	63,538	1,815	18	..	..	..	..	..	12,773	..	1,500	..	164
Esk	..	..	..	36	13,196	..	..	269	7,456	214	85	..	..	..	..	..	1,588	3,240	4,085	40	6,187
Gatton	411	..	..	..	106,487	..	..	4,657	141,967	1,686	766	..	..	..	500	..	9,803	4,000	..	..	13,428
Goodna	..	..	..	..	1,030	..	..	80	..	27	..	..	..	..	..	..	62	..	..	..	..
Harrisville	..	..	..	..	52,261	..	..	1,734	66,185	402	66	..	..	..	..	..	10,722	..	20	..	128
Ipswich	..	..	..	..	9,684	..	..	116	35,767	271	23	..	..	..	..	..	1,385	..	700	6,900	185
Kilcoy	..	..	..	..	8,506	..	..	308	2,715	180	178	..	..	4	..	..	788	..	10,857	20	..
Laidley	..	..	..	..	104,988	..	..	1,985	67,547	986	319	..	..	..	..	..	11,342	1,800	300	100	138
Logan	..	160	..	..	16,771	..	..	140	..	1,160	485	861	19,043	4,060	..	..	346	4,851	118,473	26,905	6,428
Lowood	..	..	..	..	64,891	..	..	1,990	58,837	1,109	312	..	..	..	500	..	3,885	303,894	..	3,510	2,220
Marburg	..	..	..	..	29,750	..	..	307	27,652	175	95	..	..	11	..	..	1,587	100	..	820	..
Maroochy	..	..	..	..	5,554	..	..	22	..	46	120	4,150	79,678	259	..	5,580	68	..	373,177	596,195	86,759
Redcliffe	..	..	..	..	5,428	..	..	445	421	236	192	13	162	..	..	..	154	1,564	162,601	12,703	2,012
Rosewood	..	100	..	..	31,626	..	..	471	61,039	261	34	..	..	18	..	..	4,772	..	..	..	..
Southport	..	..	..	..	11,909	..	..	190	..	558	81	25	466	5,240	..	..	103	..	430,139	3,747	9,255
Toogoolawah	..	..	..	..	43,580	..	..	1,326	14,605	782	400	..	..	2	..	..	4,811	11,240	1,600	..	89
Woodford	..	..	..	..	7,553	..	..	175	2,043	104	65	8	126	32	..	..	10	..	80,240	1,976	899
Wynnum	..	..	..	..	62	..	..	15	..	11	17	..	..	..	..	..	..	22,080	17,920	16,487	50
Cooyar	582	315	63	81	26,206	..	..	656	..	470	..	..	..	..	..	..	701	..	..	..	30
Helidon	..	..	..	..	15,688	..	..	883	3,860	409	137	..	..	..	..	..	1,839	..	..	..	4,034
Total Moreton	4,637	1,584	774	1,700	911,584	45	..	22,657	561,399	12,566	3,892	5,059	99,503	9,756	22,818	5,580	77,356	971,846	1,362,322	1,087,123	145,195
Wide Bay Division.																					
Biggenden	..	..	..	..	80	..	..	31	207,601	4	..	..	..	..	..	..	..	..	2,000	..	..
Bundaberg	..	..	..	..	12,195	..	..	41	29,982	123	67	21,911	366,238	20	1,613	..	268	4,340	50,359	7,763	3,709
Childers	..	..	..	..	2,688	..	..	3	95,835	4	..	8,351	95,904	..	..	..	..	..	..	250	3,650
Eidsvold	..	..	..	..	4,484	..	..	461	436,397	44	182	..	..	..	..	..	269	..	..	..	164
Gayndah	100	..	..	..	27,547	..	..	809	1,086,766	179	61	..	..	..	..	..	1,903	..	980	450	12,969
Gin Gin	..	..	..	..	13,421	..	..	9	74,350	52	7	3,346	23,601	..	..	..	199	1,800	100	590	40
Gympie	60	..	..	..	36,430	..	..	161	5,709	241	79	102	1,819	159	4,530	..	801	1,430	393,073	124,788	3,006
Kilkivan	..	..	..	..	5,198	..	..	103	35,029	81	37	..	..	..	..	..	821	..	500	..	432
Maryborough	..	..	..	..	1,734	..	..	26	24,014	202	4	3,745	50,956	..	..	..	877	19,842	11,378	37,169	43,904
Mount Perry	..	..	..	..	245	..	..	..	19,996	1	6	..	..	..	..	..	7	..	..	..	..
Nanango	1,847	2,110	..	60	403,059	..	..	2,258	66,652	928	271	..	..	7	..	..	7,859	..	..	..	532
Tiaro	..	..	..	..	9,816	..	..	97	14,720	287	30	1,778	21,431	8	..	..	535	5,000	12,275	3,027	1,165
Wienholt	2,396	120	..	..	522,771	..	..	2,868	444,965	2,235	117	..	..	..	..	..	8,601	..	..	..	26
Total Wide Bay	4,403	2,230	..	60	1,039,668	..	..	6,867	2,542,016	4,381	861	39,233	559,949	194	6,143	..	22,140	32,412	470,665	174,037	69,597
Port Curtis Division.																					
Banana	3,720	..	..	..	758	..	..	82	708,510	27	..	..	..	..	..	..	393	4,000	..	..	116
Gladstone	..	..	..	..	12,816	..	..	323	211,518	516	75	..	..	..	19,006	..	811	7,085	5,203	1,581	1,794
Monto	..	..	..	..	10,954	..	..	575	2,559,172	214	18	..	..	..	..	..	2,823	..	..	..	..
Mount Morgan	6,210	..	..	..	2,495	..	..	85	10,297,069	28	8	..	..	..	..	..	309	..	..	708	1,033
Rockhampton	35	..	..	..	16,790	..	..	396	433,689	392	96	..	..	..	415	..	1,618	91,332	124,828	36,827	23,703
St. Lawrence	..	..	..	..	749	..	..	14	27,132	17	5	..	..	..	..	..	271	..	537	522	..
Total Port Curtis	9,965	..	..	..	44,562	..	..	1,475	14,237,090	1,194	202	..	..	..	19,421	..	6,225	102,417	130,568	39,638	26,646

Table No. LXIX.—*continued.*

Return Showing the Gross Produce of Principal Crops Raised in the Several Petty Sessions Districts of the State during the Year 1933—*continued.*

Divisions.	Quantity of Produce.																				
	Grain Crops.							Pumpkins.	Cotton.	Potatoes.		Sugar-cane.		Arrow-root (Tubers).	Tobacco (Cured Leaf).	Coffee.	Hay (All Kinds).	Vines.	Bananas.	Pineapples.	Oranges.
	Wheat.	Oats.	Barley. Malting.	Barley. Other.	Maize.	Rye.	Rice.			English.	Sweet.	Area Crushed.	Weight Obtained.					Grapes Gathered.			
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Tons.	Lb.	Tons.	Tons.	Acres.	Tons.	Tons.	Lb.	Lb.	Tons.	Lb.	Bunches.	Dozens.	Bushels.
Edgecumbe Division.																					
Ayr	..	..	..	..	..	..	..	22	11,271	5	30	21,263	619,741	..	7,433	..	..	..	9,000	..	..
Bowen	..	..	..	..	2,938	..	..	882	920	91	14	64	1,544	..	25,060	..	..	..	2,988	22,323	1,367
Cape River	..	..	..	..	84	..	..	38	..	6	10	..	..	..	..	..	2	2,776	..	..	1,467
Charters Towers	..	..	..	..	..	..	..	7	380	8	1	..	..	..	11,565	..	30	50,486	..	..	3,354
Collinsville	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mackay	..	..	..	..	500	..	..	7	7,269	20	9	56,223	925,775	..	63,271	..	..	1,289	15,806	884	4,683
Proserpine	..	..	..	..	255	..	..	15	..	9	..	8,251	140,144	..	..	..	..	..	672	140	1,613
Ravenswood	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2,800	..	..	..	..	..	116
Townsville	..	..	..	..	624	..	..	139	..	328	20	135	2,155	..	55,043	..	56	..	5,761	25,045	626
Total Edgecumbe	..	..	..	..	4,401	..	..	1,110	19,840	467	84	85,936	1,689,359	..	165,172	..	88	54,551	34,227	48,392	13,226
Rockingham Division.																					
Atherton	..	..	..	..	811,673	..	..	55	22,882	13	45	..	..	..	..	..	16	..	2,820	..	305
Cairns	..	..	..	..	2,050	..	..	4	13,376	13	51	29,182	707,082	..	43,385	..	..	..	19,305	3,870	3,471
Cardwell	..	..	..	..	522	..	..	5	7,923	6	1	9,243	247,673	..	..	..	..	..	5,098	730	17,966
Chillagoe	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3,978	..	..	..	..	..	..
Herberton	..	..	..	..	6,678	..	..	1	..	23	51	..	..	..	54,632	..	47	15,680	..	..	..
Ingham	..	..	..	..	120	..	..	23	..	..	2	23,801	495,838	..	300	..	..	..	230	1,390	2,295
Innisfail	..	..	..	..	..	..	..	..	..	..	..	28,883	730,654	..	..	..	..	..	1,228	..	..
Mareeba	..	..	..	..	191	..	..	..	4,446	12	1	..	..	..	1,046,571	..	..	..	80	..	370
Total Rockingham	..	..	..	..	821,234	..	..	88	48,627	67	151	91,109	2,181,247	..	1,148,866	..	63	15,680	28,761	5,990	24,407
York Peninsula Division.																					
Coen	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cook	..	..	..	..	555	..	..	1	..	..	..	..	..	..	2,549	..	..	..	482	..	586
Douglas	..	..	..	..	..	..	..	..	..	..	..	6,817	137,064	..	..	..	..	..	..	..	413
Somerset	..	..	..	..	314	..	..	135	..	..	124	..	..	..	..	..	..	..	480	120	..
Total York Peninsula	..	..	..	..	869	..	..	136	..	..	124	6,817	137,064	..	2,549	..	..	..	962	120	999
Carpentaria Division.																					
Burke	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cloncurry	..	..	..	..	..	..	..	2	..	1	2	..	..	..	..	..	..	..	..	..	265
Croydon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Etheridge	..	..	..	..	40	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hughenden	..	..	..	..	..	..	..	3	..	3	1	..	..	..	..	..	..	..	..	..	440
Julia Creek	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mount Isa	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Norman	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Richmond	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total Carpentaria	..	..	..	..	40	..	..	5	..	4	3	..	..	..	..	..	..	..	..	..	705
Central-Western Division.																					
Boulia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Camooweal	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diamantina	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Isisford	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Jundah	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Windorah	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Winton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total Central-Western	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Table No. LXIX.—*continued.*

Return Showing the Gross Produce of Principal Crops Raised in the Several Petty Sessions Districts of the State during the Year 1933—*continued.*

Divisions.	QUANTITY OF PRODUCE.																				
	GRAIN CROPS.							Pump-kins.	Cotton.	POTATOES.		SUGAR-CANE.		Arrow-root (Tubers).	Tobacco (Cured Leaf).	Coffee.	Hay (All Kinds).	VINES.	Bananas.	Pineapples.	Oranges.
	Wheat.	Oats.	BARLEY.		Maize.	Rye.	Rice.			English.	Sweet.	Area Crushed.	Weight Obtained.					Grapes Gathered.			
			Malting.	Other.																	
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Tons.	Lb.	Tons.	Tons.	Acres.	Tons.	Tons.	Lb.	Lb.	Tons.	Lb.	Bunches.	Dozens.	Bushels.
South-Western Division.																					
Adavale	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Augathella	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bollon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Charleville	..	..	..	..	..	..	..	1	..	5	..	..	..	..	..	..	17	3,185	..	..	975
Cunnamulla	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	50	..	..	..	..
Eulo	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hungerford	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Quilpie	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
St. George	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3,400	..	..	30
Thargomindah	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total South-Western	..	..	..	..	..	..	..	1	..	5	..	..	..	..	..	..	67	6,585	..	..	1,005
Central Division.																					
Alpha	..	..	..	..	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	100
Aramac	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Barcaldine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Blackall	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Clermont	..	..	..	..	90	..	..	5	7,581	7	3	..	..	..	..	..	3	..	..	..	320
Emerald	..	..	..	..	..	..	..	2	21,338	3	..	..	..	..	..	..	..	100	..	..	2,400
Longreach	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Muttaburra	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Springsure	..	..	..	..	280	..	..	100	10,599	5	..	..	..	..	..	..	..	..	..	..	..
Tambo	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Taroom	..	..	..	..	150	..	..	..	8,353	1	..	..	..	..	..	..	2	..	..	..	..
Total Central	..	..	..	..	530	..	..	107	47,871	16	3	..	..	..	..	..	5	100	..	..	2,820
Maranoa Division.																					
Mitchell	22,154	..	..	..	..	..	..	1	809	1	..	..	..	..	..	..	49	..	..	..	..
Roma	386,147	2,226	..	48	522	..	..	44	149,645	3	..	..	..	..	..	..	2,713	679,045	..	..	3,842
Surat	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Yeulba	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	1	680	..	..	155
Total Maranoa	408,301	2,226	..	48	522	..	..	47	150,454	4	..	..	..	..	..	..	2,763	679,725	..	..	3,997
Downs Division.																					
Allora	423,027	2,035	14,398	1,220	90,345	..	..	..	..	..	..	..	..	..	..	..	3,560	..	..	..	2,000
Chinchilla	2,900	..	..	..	1,235	..	..	..	15,947	..	..	..	..	..	..	..	456	44,900	..	..	400
Clifton	698,712	5,493	44,386	18,231	179,384	795	..	20	..	..	..	..	..	..	..	..	5,566	2,330	..	..	..
Condamine	13,076	..	..	..	795	..	..	4	44,997	1	..	..	..	..	..	..	375	3,530	..	..	307
Dalby	244,713	4,634	2,030	112	10,748	..	..	170	38,447	33	..	..	..	..	..	..	805	674	..	..	96
Goondiwindi	1,848	..	500	..	..	..	..	3	..	5	..	..	..	..	..	..	97	..	..	..	519
Inglewood	19,264	3,207	360	168	1,710	..	..	52	7,959	5	..	..	..	..	187,940	..	709	6,340	..	..	21
Killarney	105,980	1,692	360	1,042	76,041	..	..	24	..	138	..	..	..	..	..	..	2,025	1,910	..	..	75
Oakey	790,758	20,611	3,362	5,166	131,928	..	..	486	633	268	20	..	..	..	..	..	5,321	12,940	..	..	209
Pittsworth	1,007,784	10,865	9,472	4,680	61,306	..	..	98	2,977	6	..	..	..	..	..	..	4,491	..	..	..	..
Stanthorpe	..	..	..	..	796	..	..	2	..	327	..	..	..	..	42,546	..	33	3,065,656	..	..	..
Texas	6,909	..	..	..	268	..	..	..	..	6	..	..	..	..	484,299	..	132	..	..	..	..
Toowoomba	185,317	6,075	22,604	7,912	108,295	..	..	26	49	365	4	..	..	..	..	..	6,464	29,371	..	..	2,133
Warwick	434,020	8,882	1,540	12,355	229,503	..	..	62	..	265	..	..	..	..	..	..	5,509	22,055	..	..	39
Total Downs	3,934,308	63,494	99,012	50,886	892,354	795	..	947	111,009	1,419	24	..	..	..	714,785	..	35,543	3,189,706	..	..	5,799
Grand Total 1933	4,361,614	69,534	99,786	52,694	3,715,764	840	..	33,440	17,718,306	20,123	5,344	228,154	4,667,122	9,950	2,079,754	5,580	144,250	5,053,022	2,027,505	1,355,300	294,396
Grand Total 1932	2,493,902	58,729	67,792	33,241	1,653,853	239	..	18,153	6,270,116	14,017	4,106	205,046	3,546,370	6,878	2,303,861	4,200	82,104	5,296,980	1,869,883	1,175,870	321,995
Increase, 1933	1,867,712	10,805	31,994	19,453	2,061,911	601	..	15,287	11,448,190	6,106	1,238	23,108	1,120,752	3,072	..	1,380	62,146	..	157,622	179,430	..
Decrease, 1933	..	..	..	..	..	..	..	..	..	..	..	..	..	..	224,107	..	..	243,958	..	..	27,599

Table No. LXX.

SHOWING THE TOTAL EXTENT OF LAND UNDER CULTIVATION AND THE AREA UNDER EACH DESCRIPTION OF CROP IN QUEENSLAND—RETURN FOR TEN YEARS.

Year.	Total Extent of Land under Cultivation.	Land in Fallow Lying Idle, &c.	Total Extent of Land under Crop.	AREA UNDER EACH DESCRIPTION OF CROP.																																	
				GRAIN CROPS.							POTATOES.		Pumpkins.	COTTON.		SUGAR-CANE.		Arrowroot	Tobacco.	COFFEE.		Hay (all Kinds)	Lucerne and Green Forage.	VINES.		Bananas.	Pineapples.	ORANGES.		MANGOES.		Strawberries.	APPLES.		Other Crops.	Market Gardens.	Other Gardens and Orchards.
				Wheat.	Oats.	Barley.		Maize.	Rye.	Rice.	English.	Sweet.		Bearing.	Total Area.	Area Crushed.	Total Area.			Bearing.	Total Area.			Bearing.	Total Area.			Bearing.	Total Area.	Bearing.	Total Area.		Bearing.	Total Area.			
						Malting.	Other.																														
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1924	1,275,039	205,202	1,069,837	189,145	4,010	6,268	2,530	229,160	65	...	9,493	1,719	13,020	50186	82,174	167,649	253,519	431	166	14	17	95,007	134,109	1,137	1,579	13,491	3,709	2,609	3,871	245	279	150	2,331	4,359	14,889	1,619	5,058
1925	1,241,118	207,353	1,033,765	165,999	1,293	5,496	1,505	154,252	26	3	10,478	1,564	8,232	40062	53,363	189,675	269,509	568	96	10	13	66,828	247,482	1,166	1,656	*a*	*g*	2,585	3,756	260	296	111	2,520	4,360	11,564	1,017	5,538
1926	1,288,518	316,735	941,783	57,084	210	250	149	137,542	3	9	8,642	1,252	5,963	18743	31,460	189,312	266,519	831	125	17	19	40,141	342,580	1,268	1,682	*b*	*h*	2,734	3,899	211	240	86	2,759	4,203	11,612	1,096	5,462
1927	1,295,992	229,380	1,066,612	215,073	2,272	2,366	854	234,013	25	...	10,035	1,615	15,760	14950	28,830	203,748	274,838	883	135	9	24	65,412	155,843	1,475	1,762	*c*	*j*	2,646	3,874	190	221	110	3,212	4,158	20,060	1,083	5,195
1928	1,268,475	223,843	1,044,632	218,069	916	5,188	2,466	192,173	70	3	8,154	1,841	8,746	20316	26,122	215,674	283,476	538	138	7	11	55,498	180,524	1,627	1,787	*d*	*k*	2,752	3,734	208	249	152	3,502	4,133	20,083	918	5,159
1929	1,269,242	223,007	1,046,235	204,116	2,003	6,318	3,436	171,614	27	1	8,116	2,066	11,014	15003	27,659	214,880	291,660	601	159	11	12	49,745	208,624	1,617	1,749	*e*	*l*	2,874	3,872	182	204	182	3,475	4,012	18,502	862	5,180
1930	1,331,513	187,297	1,144,216	272,316	5,132	6,148	2,286	172,176	29	...	10,277	2,015	14,437	22652	35,527	222,044	296,070	761	71	12	12	52,228	217,282	1,519	1,687	*f*	*m*	2,805	3,773	155	185	173	3,427	4,039	17,924	903	5,193
1931	1,401,932	185,530	1,216,402	248,783	1,364	1,701	522	147,669	7	...	10,374	1,874	13,143	22452	50,357	233,304	309,818	789	1289*	17	21	59,601	309,957	1,514	1,749	*n*	*o*	2,965	3,969	146	169	126	3,745	4,536	21,789	778	5,464
1932	1,426,648	181,010	1,245,638	250,049	3,733	3,275	1,515	98,487	18	...	9,743	1,791	9,546	29995	56,108	205,046	291,136	691	7239†	7	9	64,076	392,762	1,586	1,868	*p*	*q*	2,824	3,622	132	160	114	3,527	4,741	22,163	992	5,349
1933	1,499,996	186,558	1,313,438	232,053	5,207	5,728	3,037	166,948	47	...	11,936	1,791	13,518	68203	87,096	228,154	311,910	797	5359‡	5	7	92,943	311,462	1,586	1,963	*r*	*s*	2,696	3,424	178	208	126	3,488	5,199	29,353	833	5,678

* 382 acres bearing.
† 3,817 acres bearing.
‡ 4,004 acres bearing.

a Bananas, bearing, 10,553 acres; total area, 14,766 acres.
b Bananas, bearing, 11,122 acres; total area, 16,489 acres.
c Bananas, bearing, 10,968 acres; total area, 17,967 acres.
d Bananas, bearing, 13,185 acres; total area, 19,750 acres.
e Bananas, bearing, 12,874 acres; total area, 19,357 acres.
Bananas, bearing, 12,565 acres; total area, 18,030 acres.

g Pineapples, bearing, 3,368 acres; total area, 3,995 acres.
h Pineapples, bearing, 3,274 acres; total area, 4,235 acres.
j Pineapples, bearing, 3,099 acres; total area, 4,204 acres.
k Pineapples, bearing, 3,259 acres; total area, 4,734 acres.
l Pineapples, bearing, 3,393 acres; total area, 5,144 acres.
m Pineapples, bearing, 3,983 acres; total area, 5,543 acres.

n Bananas, bearing, 10,885 acres; total area, 14,764 acres.
o Pineapples, bearing, 4,394 acres; total area, 5,789 acres.
p Bananas, bearing, 7,235 acres; total area, 10,589 acres.
q Pineapples, bearing, 4,534 acres; total area, 5,862 acres.
r Bananas, bearing, 6,777 acres; total area, 10,926 acres.
s Pineapples, bearing, 4,551 acres; total area, 5,889 acres.

Table No. LXXI.

SHOWING THE GROSS PRODUCE OF PRINCIPAL CROPS RAISED IN QUEENSLAND—RETURN FOR TEN YEARS.

Year.	QUANTITY OF PRODUCE.																												
	GRAIN CROPS.							POTATOES.		Pumpkins.	Cotton Unginned.	SUGAR-CANE.		Arrowroot (Tubers).	Tobacco (Cured Leaf).	Coffee.	Hay (all Kinds).	Ensilage.	VINES.		Bananas.	Pineapples.	Oranges.	Mangoes.	Strawberries.	Apples.	Market Gardens.	Other Gardens and Orchards.	Total Value all Crops.
	Wheat.	Oats.	Barley.		Maize.	Rye.	Rice.	English.	Sweet.			Weight of Cane.	Sugar made at 94 % Net Titre.						Grapes.	Wine.									
			Malting.	Other.																									
	Bshls.	Bshls.	Bshls.	Bshls.	Bshls.	Bshls.	Bshls.	Tons.	Tons.	Tons.	Lb.	Tons.	Tons.	Tons.	Lb.	Lb.	Tons.	Tons.	Lb.	Galls.	Bunches.	Dozens.	Bushels.	Bushels.	Quarts.	Bushels.	£	£	£
1924	2,779,929	63,912	127,645	43,479	7,330,821	2,379	...	20,314	7,113	48,770	16,416,170	3,171,341	409,136	4,939	135,767	6,160	136,804	8,195	2,664,089	33,119	2,463,783	973,457	262,791	56,604	217,750	98,644	66,413	154,047	13,992,384
1925	1,973,477	14,546	74,575	17,866	3,384,172	615	35	15,386	6,742	23,030	19,537,274	3,668,252	485,585	7,842	103,523	5,192	99,742	4,654	2,898,546	39,375	2,582,784	902,636	281,862	39,636	129,612	130,369	41,212	169,407	12,526,609
1926	379,339	1,674	1,061	930	2,658,895	89	120	9,749	3,810	12,154	9,059,907	2,925,662	389,272	9,235	102,784	8,798	47,740	4,728	3,610,997	32,974	2,754,795	953,248	283,775	50,338	102,532	113,810	46,261	108,466	12,181,917
1927	3,783,584	43,788	57,032	15,368	6,703,518	638	...	18,914	6,009	51,148	7,060,756	3,555,827	485,745	10,122	109,595	6,578	94,996	9,721	3,777,830	38,571	2,863,414	823,331	243,037	34,295	85,924	103,893	43,834	175,285	14,503,791
1928	2,515,561	13,737	76,392	31,201	5,135,607	1,092	121	9,687	7,572	20,922	12,290,910	3,736,311	520,620	5,928	111,885	2,102	85,651	4,037	3,946,788	37,210	3,265,161	938,335	377,177	78,609	161,584	183,461	43,787	155,888	12,709,041
1929	4,235,172	38,494	139,604	65,963	4,376,412	364	12	13,214	7,017	27,591	8,024,502	3,581,265	518,516	4,870	192,943	8,227	79,583	2,933	4,230,703	48 174	2,940,683	857,116	272,861	45,623	330,287	177,082	42,709	192,784	13,803,792
1930	5,107,561	94,452	134,226	39,337	4,565,850	330	...	18,489	7,109	38,354	17,022,897	3,528,660	516,783	10,098	58,594	6,458	87,146	4,880	5,366,062	48,899	3,068,143	1,000,508	308,967	31,924	209,413	217,317	43,377	154,222	12,821,665
1931	3,863,894	20,352	28,882	7,515	3,780,597	54	...	17,189	6,802	33,222	15,244,644	4,034,300	581,276	8,276	260,670	8,455	91,275	5,819	4,917,808	41,456	2,950,678	1,181,654	304,661	36,781	148,329	179,745	30,236	164,350	12,190,794
1932	2,493,902	58,729	67,792	33,241	1,653,853	239	...	14,017	4,106	18,153	6,270,116	3,546,370	514,027	6,878	2,303,861	4,200	82,104	6,305	5,296,980	35,301	1,869,883	1,175,870	321,995	23,035	111,667	233,565	35,699	148,400	11,305,731
1933	4,361,614	69,534	99,786	52,694	3,715,764	840	...	20,123	5,344	33,440	17,718,306	4,667,122	638,559	9,950	2,079,754	5,580	144,250	8,515	5,053,022	31,796	2,027,505	1,355,300	294,398	11,126	158,732	298,372	31,217	140,356	12,303,271

Table No LXXII.

Showing Average Produce per Acre of Principal Crops in Queensland—Return for Ten Years.

Year.	GRAIN CROPS.							POTATOES.				SUGAR.														
	Wheat.	Oats.	Barley.		Maize.	Rye.	Rice.	English.	Sweet.	Pumpkins.	Cotton Unginned.	Cane per Acre Crushed.	Sugar per Acre Crushed.	Arrowroot (Tubers).	Tobacco (Cured Leaf).	Coffee.	Hay (all Kinds).	Grapes.	Bananas.	Pineapples.	Oranges.	Mangoes.	Strawberries.	Apples.	Market Garden.	Gardens and Orchards.
			Malting.	Other.																						
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Tons.	Tons.	Tons.	Lb.	Tons.	Tons.	Tons.	Lb.	Lb.	Tons.	Lb.	Bunches.	Doz.	Bushels.	Bushels.	Quarts.	Bushels	£	£
1924 ...	14·70	15·94	20·36	17·19	31·99	36·60	...	2·14	4·14	3·75	327	18·92	2·44	11·46	818	440	1·44	2,343	183	262	101	231	1,452	42	41	30
1925 ...	11·89	11·25	13·57	11·87	21·94	23·65	11·67	1·47	4·31	2·80	488	19·36	2·56	13·81	1,078	519	1·49	2,486	245	268	109	152	1,168	52	41	38
1926 ...	6·35	7·97	4·24	6·24	19·33	29·67	13·33	1·13	3·04	2·04	483	15·45	2·16	11·11	822	518	1·19	2,848	248	291	104	239	1,192	41	42	25
1927 ...	17·59	19·27	24·10	18·00	28·65	25·52	...	1·88	3·72	3·25	472	17·45	2·38	11·46	812	731	1·45	2,561	261	266	92	181	781	32	40	41
1928 ...	11·54	15·00	14·72	12·65	26·72	15·60	40·33	1·19	4·11	2·39	605	17·32	2·41	11·04	811	300	1·54	2,426	248	288	137	378	1,063	52	48	35
1929 ...	20·75	19·22	22·10	19·20	25·50	13·48	12·00	1·63	3·40	2·51	535	16·67	2·41	8·10	1,213	748	1·60	2,616	228	253	95	251	1,815	51	50	44
1930 ...	18·76	18·40	21·83	17·21	26·52	11·38	...	1·80	3·53	2·66	751	15·89	2·33	13·29	825	538	1·67	3,533	244	251	110	206	1,210	63	48	35
1931 ...	15·53	14·92	16·98	14·40	25·60	7·71	...	1·66	3·63	2·53	679	17·29	2·49	10·49	682	497	1·53	3,248	271	269	103	252	1,177	48	39	35
1932 ..	9·97	15·73	20·70	21·94	16·79	13·28	...	1·44	2·29	1·90	209	17·30	2·51	9·95	604	600	1·28	3,340	258	259	114	175	980	66	36	34
1933 ...	18·80	13·35	17·42	17·35	22·26	17·87	...	1·69	2·98	2·47	260	20·46	2·80	12·48	519	1,116	1·55	3,186	299	298	109	63	1,260	86	37	30
*	14·30	16·42	18·01	17·39	23·15	6·74	19·16	1·70	3·81	2·79	413	17·24	2·30	11·40	624	506	1·38	2,588	203	245	106	225	1,207	51	35	28

* Average for twenty years.

Table No. LXXIII.

Return Showing the Area and Produce Obtained during the Year 1933 from Certain Other Crops, details of which are not included in the General Table.

Division.		Other Fruits.																		Vegetables.									Other Miscellaneous Crops.									
																				Beans.					Peas.													
		Apples.	Apricots.	Cherries.	Custard Apples.	Figs.	Gooseberries (Cape).	Lemons.	Mangoes.	Nectarines.	Passion Fruit.	Pawpaws.	Peaches.	Pears.	Persimmons.	Plums.	Quinces.	Strawberries.	Melons	Green.	Dried.	Cabbages and Cauliflowers.	Cucumbers.	Onions.	Green.	Dried.	Tomatoes.	Turnips.	Broom Millet.	Canary Seed.	Cow Peas.	Cocoanuts.	Grass Seed.	Panicum Seed.	Lucerne Seed.	Mangel-Wurzels	Millet (Seed).	Pea Nuts.
		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Moreton ...	Bearing ...	...	...	..	199	12	6	47	17	...	105	554	41	...	5	6	...	122	235	503	5	653	214	665	363	6	1,443	76	119	...	...	...	14	...	...	231	...	20
	Not bearing	...	...	...	6	...	.	24	8	...	...	211	14	1	...	...	.	...	...																			
Wide Bay	Bearing ..	...	...	...	6	...	15	26	61	...	1	19	1	...	...	1	...	...	...	197	2	26	1	48	45	103	45	16	195	...	409	...	1,032	...	...	13	...	2,237
	Not bearing	...	...	...	3	...	...	8	4	...	...	10	...	...	...	...	...	...	...																			
Port Curtis	Bearing ...	...	...	...	16	...	...	15	23	...	12	40	1	...	1	...	...	2	20	25	...	58	5	37	31	...	341	10	52	...	27	...	...	...	...	...	2	156
	Not bearing	...	...	...	4	..	...	1	2	...	...	21	...	...	...	...	...	...	...																			
Edgecumbe	Bearing ...	..	...	...	10	...	...	12	66	...	...	15	...	...	...	...	...	1	3	9	...	20	57	...	2	...	1,053	3	...	...	...	...	...	...	...	...	...	1
	Not bearing	...	...	...	1	...	...	1	14	...	...	13	...	...	...	...	...	...	...																			
Rockingham	Bearing ...	1	...	...	...	...	...	4	7	...	...	3	...	...	...	1	...	...	...	6	...	9	2	...	...	...	29	...	...	...	47	...	..	...	...	...	...	176
	Not bearing	...	...	...	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...																			
York Peninsula	Bearing ...	...	...	...	...	...	...	...	4	...	...	1	...	...	...	...	...	...	...	...	...	2	...	...	...	...	1	...	...	...	...	322	...	...	...	...	...	38
	Not bearing	...	...	...	...	...	...	1	2	...	...	1	...	...	...	...	...	...	...																			
Carpentaria	Bearing ...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	3	1	...	5	...	3	1	...	3	...	...	...	...	...	...	...	...	...	...	...
	Not bearing	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...																			
Central-western	Bearing ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Not bearing	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...																			
South-western	Bearing ...	...	...	...	...	...	...	1	...	...	...	...	2	...	...	...	...	...	...	1	...	1	1	2	1	...	2	1	...	...	...	...	...	...	...	...	...	...
	Not bearing	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...																			
Central ...	Bearing ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	1	...	4	1	...	...	...	2	...	16	...	...	...	...	..	...	...	...	...
	Not bearing	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...																			
Maranoa ...	Bearing ..	...	...	...	...	...	...	1	...	...	...	...	2	...	...	1	...	...	...	...	...	2	...	1	2	...	4	...	16	...	...	...	...	...	...	...	...	...
	Not bearing	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...																			
Downs ...	Bearing ...	3,487	97	4	...	...	...	4	...	47	...	...	1,351	227	...	1,045	8	1	...	664	1	477	4	17	431	3	1,507	5	78	10,293	...	...	1,744	2,018	50	...	736	2
	Not bearing	1,711	54	...	...	...	...	...	...	...	...	...	347	42	...	309	...	...	...																			
Total Area	Bearing	3,488	97	4	231	12	21	111	178	47	118	632	1,398	227	6	1,054	8	126	261	1,407	8	1,257	285	773	876	112	4,430	111	476	10,293	483	322	2,790	2,018	50	244	738	2,630
	Not bearing	1,711	54	...	15	.	..	35	30	..	...	257	361	43	...	310	...	...	...																			
		Bushels.	Bushels.	Bushels.	Bushels	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Quarts.	Tons.	Bags.	Bushels.	Dozens.	Dozens.	Cwt.	Bags.	Bushels.	Bushels.	Tons.	Lb. straw.	Lb.	Bushels.	Dozens.	Bushels.	Lb.	Lb.	Tons.	Bushels.	Lb.
Moreton		...	...	...	27,138	61	205	6,180	557	...	7,856	132434	3,394	...	273	289	...	157,495	560	41,889	517	173,254	143,756	36,788	21,401	697	161,805	340	119,078	...	...	...	115	...	...	1.350	...	22,768
Wide Bay		...	...	...	290	...	3360	3,140	2,343	...	100	3,332	30	...	...	20	...	...	...	11,406	300	6,897	200	2.622	1,558	2,008	1,808	47	110,788	...	2463	...	8,109	...	...	103	...	2,274,630
Port Curtis		...	...	...	992	...	...	2,465	1,738	...	1,980	5,676	16	...	34	...	...	975	104	3,487	...	24.235	1,016	1,131	3,185	...	35,265	32	15,080	...	156	...	...	...	...	...	80	154,926
Edgecumbe		...	...	...	426	...	...	770	4,571	...	...	3,096	...	...	...	...	...	150	9	454	...	8,994	22,537	...	70	...	71,664	7	...	...	...	...	...	...	...	...	...	604
Rockingham		10	...	...	...	...	...	862	227	...	...	459	...	...	...	40	...	...	...	232	...	1,391	300	...	...	...	629	...	...	...	361	...	...	...	...	...	...	210,920
York Peninsula		...	...	...	...	...	...	...	1,690	...	...	180	...	...	...	...	...	...	...	...	...	226	...	...	...	...	76	...	...	...	...	12,320	...	...	...	...	...	34,702
Carpentaria		...	...	...	...	...	...	77	...	...	...	...	...	...	...	...	...	...	5	50	...	320	...	90	80	...	91	...	...	...	...	...	...	...	...	...	...	...
Central-western		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
South-western		...	...	...	...	...	...	60	...	...	...	...	120	...	...	...	...	...	...	15	...	90	100	36	15	...	110	2	...	...	...	...	...	...	...	...	...	...
Central		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	127	...	60	124	...	...	...	114	...	6,560	...	...	...	...	...	...	...	...	...
Maranoa		...	...	...	...	...	...	28	...	...	...	...	84	...	...	4	...	...	...	...	...	316	...	20	90	...	270	...	4,000	...	...	...	...	...	...	...	...	...
Downs		298,362	7,145	241	...	...	...	350	...	3,519	...	...	101250	21,542	...	80,038	602	112	...	50,586	50	62,886	680	532	28,805	81	126,566	13	35,810	4,961,210	...	...	32,778	1813760	2,720	...	18183	400
Total Produce... ..		298,372	7,145	241	28,846	61	3565	13,932	11,126	3,519	9,936	145177	104894	21,542	307	80,391	602	158,732	678	108246	867	278,669	168,713	41,219	55,204	2,786	398,398	441	291 346	4,961,210	2980	12,320	41,002	1813760	2,720	1.453	18263	2,698,950

Table No. LXXIV.

Return Showing Average Yield per Acre of Crops in each Division of the State for the Year 1933.

Division.	Grain Crops.							Potatoes.		Sugar-cane (to Acres Crushed)	Cotton.	Arrow-root (Tuber).	Tobacco (Dried Leaf).	Coffee.	Pumpkins.	Hay of all Kinds.	Grapes.	Bananas.	Pine-apples.	Oranges,
	Wheat.	Oats.	Barley, Malting.	Barley, Other.	Maize.	Rye.	Rice.	English.	Sweet.											
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Tons.	Tons.	Tons.	Lb.	Tons	Lb.	Lb.	Tons.	Tons.	Lb.	Bunches.	Dozen.	Bushels,
Moreton	14·27	12·47	15·48	22·08	17·96	6.43	...	1·64	3·06	19·67	344	12·60	691	1,116	2·44	1·85	2,745	307	323	115
Wide Bay	11·35	12·46	...	10·00	24·06	...	...	1·63	3·02	14·27	300	8·43	473	...	2·82	1·87	830	275	270	114
Port Curtis	17·12	...	...	...	13·15	...	...	2·07	2·46	...	252	...	388	...	2·27	1·65	3,104	551	179	104
Edgecumbe	...	...	...	...	22·92	...	...	2·52	2·80	19·66	167	...	413	...	2·14	3·67	2,598	203	185	
Rockingham	...	...	...	...	42·88	...	...	1·46	3·87	23·67	263	...	452	...	2·20	1·91	2,240	147	113	126
York Peninsula	...	...	...	...	24·14	...	...	...	2·03		...	...	150	...	4·69	...	...	48	20	
Carpentaria	...	...	...	...	4.00	...	...	0·80	1·50	...	...	...	...	...	1·25	...	...	...	...	
Central-western	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
South-western	...	...	...	...	...	...	...	5·00	...	...	...	...	...	...	0·20	1·91	2,195	...	...	84
Central	...	...	...	...	18.28	...	...	2·67	3·00	...	138	...	...	...	6·69	1·00	100	...	...	101
Maranoa	20·45	14·74	...	12·00	14·11	...	...	2·00	...	...	299	...	...	...	2·61	1·24	1,725	...	...	
Downs	18·66	13·37	17·44	17.25	17·80	19·88	...	1·85	1·33	...	235	...	752	...	1·89	1·07	4,276	...	...	
Total Average Yield, 1933	18·80	13·35	17·42	17·35	22·26	17·87	...	1·69	2·98	20·46	260	12·48	519	1,116	2·47	1·55	3,186	299	298	
" " " 1932	9·97	15·73	20·70	21·94	16·79	13·28	...	1·44	2·29	17·30	209	9·95	604	600	1·90	1·28	3,340	258	259	14
Increase, 1933	8·83	...	...	...	5·47	4·59	...	0·25	0·69	3·16	51	2·53	...	516	0·57	0·27	...	41	39	...
Decrease, 1933	...	2·38	3·28	4·59	...	...	...	...	...	...	...	...	85	...	...	...	154	...	...	5

Table No. LXXV.

RETURN SHOWING THE AREA, YIELD, AND VALUE OF CROPS FOR THE YEAR 1933.

Description of rop.		Area.	Yield.		Value.
		Acres.			£
Cereals	Barley, Malting	5,728	99,786	bushels	17,252
	Barley, Other	3,037	52,694	,,	8,562
	Maize	166,948	3,715,764	,,	681,223
	Oats	5,207	69,534	,,	11,372
	Wheat	232,053	4,361,614	,,	*748,289
	Other Cereals—Rice	..	...		...
	,, ,, Rye	47	840	,,	266
Grass Seed		2,790	41,002	,,	41,002
Green Forage (all kinds)		311,462	...		622,924
Hay	Lucerne	77,473	125,082	tons	484,693
	Oaten	4,280	4,654	,,	40,916
	Wheaten	6,058	6,611	,,	32,504
	Other	5,132	7,903	,,	50,052
Straw	Oaten	...	188	,,	757
	Wheaten	...	244	,,	1,047
	Other	...	9	,,	39
Pulse	Beans	8	867	bushels	1,528
	Peas	112	2,786	,,	1,207
Root Crops	Arrowroot (Tubers)	797	9,950	tons	13,432
	Ginger	1	4	,,	232
	Mangolds	244	1,453	,,	3,633
	Onions	773	41,219	cwt.	8,630
	Potatoes	11,936	20,123	tons	125,769
	,, Sweet	1,791	5,344	,,	14,919
	Turnips (including Swede Turnips)	111	441	,,	2,811
Grapes, Productive	For table use	1,586			
	For wine		4,592,989	lb.	66,981
	For drying purposes		460,033	,	1,950
,, Unproductive		377	...		...
Sugar-cane, Productive		228,154	4,667,122	tons	7,247,122
,, Unproductive		83,756	...		...
Tobacco, Productive		4,004	2,079,754	lb. dried leaf	129,985
,, Unproductive		1,355	...		...
Market Gardens		833	...		31,217
Orchards and Fruit Gardens	Almonds	...	...		...
	Apples	3,488	298,372	bushels	96,814
	Apricots	97	7,145	,,	4,771
	Bananas	6,777	2,027,505	bunches	470,776
	Cape Gooseberries	21	3,565	qts.	59
	Cherries	4	241	bushels	156
	Custard Apples	231	28,846	,,	10,385
	Figs	12	61	,,	14
	Lemons	111	13,932	,,	13,845
	Mangoes	178	11,126	,,	3,410
	Nectarines	47	3,519	,,	1,448
	Olives	...	...		...
	Oranges and Mandarines	2,696	294,396	,,	119,905
	Passion Fruit	118	9,936	,,	6,528
	Pawpaws	632	145,177	dozen	17,835
	Peaches	1,398	104,894	bushels	35,620
	Pears	227	21,542	,,	9,716
	Persimmons	6	307	bushels	88
	Pineapples	4,551	1,355,300	dozen	203,743
	Plums	1,054	80,391	,,	26,546
	Quinces	8	602	,,	248
	Strawberries	126	158,732	qts.	9,425
	Water Melons	261	678	tons	5,848
	Other (Gardens and Orchards)	375	...		7,249
	Unproductive	9,032	...		...
Other Crops	Broom Millet	476	291,346	lb. straw	4,840
	Cabbages and Cauliflowers	1,257	278,669	dozen	76,634
	Canary Seed	10,293	4,961,210	lb.	53,711
	Cocoanuts	322	12,320	dozen	2,233
	Coffee	5	5,580	lb.	209
	,, Unproductive	2	...		...
	Cotton, Unginned	68,203	17,718,306	,,	†282,740
	,, Unproductive	18,893	...		...
	Cowpea	483	2,980	bushels	2,235
	Cucumbers	285	168,713	dozen	16,649
	Green Beans	1,407	108,246	bags	56,146
	Green Peas	876	55,204	,,	18,027
	Linseed	35	22,400	lb.	373
	Lucerne Seed	50	2,720	,,	136
	Millet Seed	738	18,263	,,	12,556
	Panicum Seed	2,018	1,813,760	lb.	15,115
	Peanuts	2,630	2,698,950	,,	24,606
	Pumpkins	13,518	33,440	tons	109,377
	Sunflower Seed	14	17,220	lb.	123
	Tomatoes	4,430	398,398	bushels	192,818
Total under Crop		1,313,438			£12,303,271
Land in fallow		68,482			
Area under permanent artificially sown grasses		777,706			
Previously cropped land lying idle during season		118,076			
New ground cleared but not ploughed during season		6,153			
Total area of arable land		2,283,855			

* Includes Bounty £76,455.

† Includes Bounty £73,540.

DATES OF PLANTING AND HARVESTING.

Principal Crops in Queensland.

Note.—Owing to the great size of Queensland with its irregular rainfall and great climate differences, this information is of necessity rather indefinite. Times of planting and consequently times of harvesting vary according to the local conditions.

The following are the dates of planting and harvesting as nearly as can be obtained :—

Crop.	Time of Planting.	Time of Harvesting.
Arrowroot	August to October	June, July, August
Barley (1) Skinless (2) Cape (3) Malting	For green fodder ; from third week in February at intervals until about second week in July. For grain ; usually sown in May	From mid October until end of November

Note.—Skinless and Cape Barley are mostly for feeding off, and malting barley for grain, although of course Skinless and Cape are also grown for grain.

Crop.	Time of Planting.	Time of Harvesting.
Canary Seed	Early planting for dual purposes, both fodder and seed made about the second to third week in April. Main planting in May, but may extend under favourable conditions till August	From mid October to end of November
Cotton	From first September to mid December, Central and South ; and till end of February, North	Beginning of March to end of October
Hay (1) Wheaten	From beginning of April to about middle of June, according to district	October and early November

Note.—A fair amount of hay is grown below the range between Toowoomba and Brisbane and harvested usually in October, as early maturing varieties are used.

Crop.	Time of Planting.	Time of Harvesting.
Hay (2) Oaten	March to end of May	Mid October to November
Maize	August to second week in January, according to district. Earlier districts, August, are usually fairly free from frost and "catch" crops are commonly planted. Main planting season in November in Southern and Central Queensland. In North Queensland (mainly Atherton Tableland) the season synchronises with the commencement of the wet season, usually starting about 1st January	May extend from latter end of December until latter end of August. Main harvest May, June, July
Sorghum, Millet, &c., (including Broom Millet and Millet grown for Fodder)	August to end of January, according to district	Sorghums about five months from planting. Millets earlier—ten weeks

Note.—The practice of late sowing is followed in some districts to synchronise with the wet season. Broom Millet commonly planted from September to November (inclusive), is harvested within five months of time of planting Seed.

Crop.	Time of Planting.	Time of Harvesting.
Sugar	April and October	Crushing from May to February. Canecutters start a day or two ahead of the crushers and thus keep them supplied
Wheat	Main season May and June. Range of planting April to first week in August. Customary in some districts to plant slow-maturing varieties in April, either feeding it off to dairy cattle and sheep or ultimately allowing it to mature into grain	Maranoa is earliest district. Harvesting in this district starts in some seasons in second week of October and continues to first week of November. In Darling Downs and other districts harvesting usually starts about the first week of November and is carried on until the end of that month.
Tobacco	Mid October to early December, but late planting not advocated	April
Potatoes	February and August	Three to four months after planting

Fruit.

Crop.	Time of Planting.	Time of Harvesting.
Bananas	October, November, December, January, and February	All year
Citrus Fruits	May to August, February	April to October
Custard Apples	June to August	May to August
Deciduous Fruits	May to August	End of November to end of March
Grapes	August and September	December to end of April
Mangoes	February, June, and July	September to March
Pawpaws	September and October, February and March	Autumn and Winter
Passion Fruit	September and October, February and March	All year. Main crops Summer and Autumn. Light Spring crop.
Pineapples	September to February	Christmas to end of March and July and August are two main crops. Off crops any time of year
Strawberries	March and April	May and October

Porter

Registrar.General,

REPORT OF THE REGISTRAR-GENERAL ON LIVE STOCK AND PASTORAL PRODUCTION FOR THE YEAR 1933.

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REPORT OF THE REGISTRAR-GENERAL ON LIVE STOCK AND PASTORAL PRODUCTION IN QUEENSLAND FOR THE YEAR 1933.

Table No. I.

Return showing the Number of Live Stock in the State for Two Years, and the Increase or Decrease for the Year 1933.

Year ended 31st December.	Horses.	Cattle.	Sheep.	Swine.
1932	452,486	5,535,065	21,312,865	213,249
1933	450,024	5,781,170	20,072,804	217,448
Numerical Increase in 1933	...	246,105	...	4,199
Numerical Decrease in 1933	2,462	...	1,240,061	...
Centesimal Increase in 1933	...	4·45	...	0·20
Centesimal Decrease in 1933	0·54	...	5·82	...

Table No. II.

Return for Ten Years showing the Number of Horses, Cattle, Sheep, and Swine in the State.

Year ended 31st December.	Horses.	Cattle.	Sheep.	Swine.
1924	660,093	6,454,653	19,028,252	156,163
1925	638,372	6,436,645	20,663,323	199,598
1926	571,622	5,464,845	16,860,772	183,662
1927	548,333	5,225,804	16,642,385	191,947
1928	522,490	5,128,341	18,509,201	215,764
1929	500,104	5,208,588	20,324,303	236,037
1930	481,615	5,463,724	22,542,043	217,528
1931	469,474	5,550,399	22,324,278	222,686
1932	452,486	5,535,065	21,312,865	213,249
1933	450,024	5,781,170	20,072,804	217,448

Table No. III.

Return for Ten Years showing the Centesimal Increase or Decrease in Live Stock.

Year ended 31st December.	Horses.	Cattle.	Sheep.	Swine.
1924	— 0·23	0·91	13·56	18·09
1925	— 3·29	— 0·28	8·59	27·81
1926	— 10·46	— 15·10	— 18·40	— 7·98
1927	— 4·07	— 4·37	— 1·30	4·51
1928	— 4·71	— 1·87	11·22	12·41
1929	— 4·28	1·56	9·81	9·40
1930	— 3·70	4·90	10·91	— 7·84
1931	— 2·52	1·59	— 0·97	2·37
1932	— 3·62	— 0·28	— 4·53	— 4·24
1933	— 0·54	4·45	— 5·82	0·20

— Decrease.

Table No. IV.

RETURN SHOWING THE DENSITY AND THE PROPORTION OF THE VARIOUS KINDS OF LIVE STOCK IN THE SEVERAL PASTORAL DISTRICTS AND THE NUMBER PER CAPITA IN THE STATE AS AT 31ST DECEMBER, 1933.

In Converting Horses and Cattle to Terms of Sheep, Ten Head of Sheep are Taken as Equal to One Horse or Head of Cattle.

Pastoral District.	Area in Acres.	Centesimal Ratio of Area of District to Area of State.	HORSES.			CATTLE.			SHEEP.			ALL KINDS IN TERMS OF SHEEP.		
			Acres per Head.	Number per Square Mile.	Percentage to Total in State.	Acres per Head.	Number per Square Mile.	Percentage to Total in State.	Acres per Head.	Number per Square Mile	Percentage to Total in State.	Acres per Head.	Number per Square Mile.	Percentage to Total in State.
Burke	65,383,040	15·24	2,081	0·31	6·98	111	5·77	10·19	24	26·20	13·34	7·36	86·95	10·78
Burnett	7,972,480	1 86	228	2·81	7·77	14	44·64	9·62	1,916	0·33	0·02	1·35	474 82	7·18
Cook	63,601,920	14·82	1,891	0·34	7·48	127	5·03	8·64	118,219	0·01	0·01	11·93	53·66	6·47
Darling Downs	16,249,600	3·79	262	2·44	13·77	29	21·77	9·56	6	100·16	12·67	1·87	342 25	10·55
Gregory North	54,266,240	12·64	5,138	0·12	2·35	354	1·81	2·65	33	19·18	8·10	16·62	38 51	3·96
Gregory South	31,617,920	7·37	5,150	0·12	1·36	294	2·18	1·86	73	8·75	2·15	20·14	31·78	1·91
Leichhardt	30,946,560	7·21	807	0·79	8·52	45	14·36	12·01	32	19·99	4·82	3·73	171·53	10·07
Maranoa	25,110,400	5·85	1,235	0 52	4·52	140	4·58	3·11	7	85·56	16·72	4·69	136·51	6·50
Mitchell	35,431,680	8·26	1,592	0·40	4·94	439	1·46	1·39	7	92·56	25·53	5·76	111·14	7·47
Moreton	5,649,920	1·32	103	6·23	12·21	10	66·93	10·22	675	0·95	0·04	0 87	732·52	7·85
North Kennedy	21,832,960	5·09	469	1·36	10·34	46	13·86	8·18	4,661	0·14	0·02	4·20	152·33	6·31
Port Curtis	8,994,560	2·09	338	1·90	5·92	18	34·60	8·41	327	1·95	0·14	1·74	366·91	6·26
South Kennedy	19,528,960	4·55	860	0·74	5 05	56	11·46	6·05	89	7·17	1·09	4·95	129·25	4·79
Warrego	37,333,760	8·70	2,742	0·23	3·03	325	1·97	1·99	12	52·76	15·33	8·56	74 78	5·29
Wide Bay	5,200,000	1·21	200	3·19	5·76	15	43·53	6·12	1,127	0·57	0·02	1·37	467·75	4·61
STATE	429,120,000	100·00	954	0·67	100·00	74	8·62	100·00	21	29·94	100·00	5·21	122·87	100·00
Number per Capita Population			0·47			6·09			21·15			86·79		

Table No. V.

The following table shows, from the latest information available, the live stock density in various countries:—

	Live Stock in Terms of Sheep per Square Mile.
Queensland	123
New South Wales	292
Victoria	465
Argentina	403
Australia	87
Germany	1,290
Soviet Republics	72
Union of South Africa	365
United Kingdom	1,839
United States of America	295

Table No. VI.

RETURN SHOWING NUMBER AND PROPORTION OF HORSES, CATTLE, SHEEP, AND SWINE IN THE SOUTHERN CENTRAL, AND NORTHERN DIVISIONS OF THE STATE AS AT 31ST DECEMBER, 1933.

Division.	HORSES.		CATTLE		SHEEP.		SWINE.	
	No.	%	No.	%	No.	%	No.	%
Southern	223,465	49·66	2,610,345	45·15	9,504,715	47·35	195,853	90·07
Central	99,099	22·02	1,406,193	24·32	7,787,203	38·80	7,843	3·61
Northern	127,460	28·32	1,764,632	30·53	2,780,886	13·85	13,752	6·32
Total State	450,024	100·00	5,781,170	100·00	20,072,804	100·00	217,448	100·00

Table No. VII.

RETURN SHOWING NUMBER OF HORSES, CATTLE, AND SHEEP PER SQUARE MILE AND PER CAPITA OF POPULATION IN THE SOUTHERN, CENTRAL, AND NORTHERN DIVISIONS OF THE STATE AS AT 31ST DECEMBER, 1933.

Division	Area in sq. miles.	Population. *	HORSES.		CATTLE.		SHEEP.		ALL KINDS IN TERM OF SHEEP.	
			Per Sq. Mile.	Per Capita of Population.	Per Sq. Mile.	Per Capita of Population.	Per Sq. Mile.	Per Capita of Population.	Per Sq. Mile.	Per Capita of Population.
Southern	209,980	671,010	1·06	0·33	12·43	3·89	45·26	14·16	180·22	56·40
Central	209,340	95,396	0·47	1·04	6·72	14·74	37·20	81·63	109·11	239·42
Northern	251,180	182,880	0·51	0·70	7·03	9·65	11·07	15·21	86·10	118·67

* Estimated 31st December, 1933 (Total, 949,286).

Table No. VIII.

RETURN SHOWING THE NUMBER OF HORSES IMPORTED AND EXPORTED INTO AND FROM THE STATE FOR THE YEAR 1933.

HORSES IMPORTED DURING 1933. Country.	Number.		Value.	
			£	£
Oversea—				
United Kingdom ...	1		87	
		1		87
Interstate (by land)—				
New South Wales...	8,972		45,757	
Northern Territory	2,198		6,999	
South Australia ...	779		3,192	
		11,949		55,948
Totals		11,950		56,035

HORSES EXPORTED DURING 1933. Country.	Number.		Value.	
			£	£
Oversea—				
Papua	4		40	
Philippines ...	1		50	
Territory of New Guinea ...	3		25	
		8		115
Interstate (by land)—				
New South Wales ...	13,104		78,100	
Northern Territory	1,182		3,828	
South Australia ...	2,467		11,970	
		16,753		93,898
Totals		16,761		94,013

N.B.—Details of Interstate Coastwise Traffic for the year ended December, 1933, not available.

Table No. IX.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF ENTIRE AND OTHER HORSES.

Year ended 31st Dec.	Entire Horses.	Other Horses.	Total.
1924	3,717	656,376	660,093
1925	2,827	635,545	638,372
1926	2,221	569,401	571,622
1927	1,951	546,382	548,333
1928	1,750	520,740	522,490
1929	1,700	498,404	500,104
1930	1,805	479,810	481,615
1931	2,221	467,253	469,474
1932	2,147	450,339	452,486
1933	2,389	447,635	450,024

Table No. X.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF OWNERS AND THE SIZES OF HERDS UNDER VARIOUS GROUPINGS, ALSO THE CENTESIMAL INCREASE OR DECREASE FOR THE YEAR 1933.

For Details of Sizes of Herds of Cattle in Pastoral Districts, for the Year 1933, see Table No. XXXVII.

Year ended 31st Dec.	1 to 100.		101 to 200.		201 to 300.		301 to 500.		501 to 1,000.	
	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.
1924 ..	39,921	1,093,972	3,902	653,778	*	*	897	348,761	742	526,408
1925 ..	39,341	1,096,618	4,151	694,989	*	*	916	355,795	715	506,630
1926 ..	38,922	1,048,964	3,781	635,735	*	*	819	321,806	657	467,437
1927 ..	38,234	1,058,777	3,841	640,761	*	*	791	307,384	639	460,477
1928 ..	37,501	1,086,823	4,017	662,848	*	*	787	309,195	637	451,767
1929 ..	37,376	1,113,944	4,359	713,674	*	*	841	326,676	633	447,727
1930 ..	37,590	1,153,767	4,709	768,192	*	*	867	338,439	652	458,244
1931 ..	38,715	1,219,244	5,006	822,241	*	*	889	346,963	679	477,297
1932 ..	39,805	1,254,112	4,978	812,966	*	*	856	330,355	708	495,940
1933 ..	40,064	1,297,024	3,969	554,522	1,126	280,329	878	343,673	718	510,694

Year ended 31st Dec.	1,001 to 5,000.		5,001 to 10,000.		10,001 and Upwards.		Totals.		Average Size of Herds.
	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	
1924	747	1,588,186	131	898,451	76	1,345,097	46,416	6,454,663	139
1925	751	1,563,877	136	921,985	73	1,296,751	46,083	6,436,645	140
1926	617	1,303,068	113	776,324	49	911,511	44,958	5,464,845	122
1927	609	1,278,875	106	731,917	40	747,613	44,260	5,225,804	118
1928	589	1,238,377	93	643,522	43	735,809	43,667	5,128,341	117
1929	601	1,256,436	106	729,907	37	620,224	43,953	5,208,588	119
1930	640	1,330,754	98	658,532	46	755,796	44,602	5,463,724	122
1931	617	1,286,905	105	704,694	40	693,055	46,051	5,550,399	121
1932	611	1,286,119	101	708,518	37	647,055	47,096	5,535,065	118
1933	645	1,321,670	108	766,659	41	706,599	47,549	5,781,170	122
Increase							0·98	4·45	3·39

* Included in group 101 to 200.

Table No. XI.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF OWNERS AND THE SIZES OF FLOCKS UNDER VARIOUS GROUPINGS ALSO THE CENTESIMAL INCREASE OR DECREASE FOR THE YEAR 1933.

For Details of Sizes of Flocks of Sheep in Pastoral Districts for the Year 1933 see Table No. XXXIX.

Year ended 31st Dec.	1 to 500.		501 to 1,000.		1,001 to 2,000.		2,001 to 5,000.		5,001 to 10,000.	
	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.
1924 ..	1,614	186,342	345	261,812	464	685,075	716	2,434,612	481	3,385,487
1925 ..	1,760	225,800	382	290,070	521	788,722	805	2,701,654	525	3,686,331
1926 ..	1,917	254,351	474	357,721	604	908,897	1,027	3,389,550	457	3,207,379
1927 ..	2,024	273,668	554	410,614	709	1,071,703	1,020	3,371,043	471	3,220,135
1928 ..	1,948	270,670	548	411,937	758	1,129,591	1,095	3,637,181	553	3,830,572
1929 ..	1,913	252,107	548	415,464	766	1,148,611	1,234	4,088,974	662	4,560,694
1930 ..	1,944	245,755	520	398,080	673	1,006,284	1,214	4,078,142	734	5,053,772
1931 ..	1,911	227,967	526	401,406	677	1,002,776	1,231	4,179,403	772	5,348,174
1932 ..	1,788	214,150	551	415,076	679	1,026,160	1,250	4,262,626	767	5,341,945
1933 ..	1,705	212,286	527	392,199	710	1,087,876	1,243	4,217,809	787	5,442,649

Year ended 31st Dec.	10,001 to 20,000.		20,001 to 50,000.		50,001 to 100,000.		100,001 and Upwards.		Totals.		Average Size of Flocks.
	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	
1924 ..	227	3,145,912	162	4,995,505	42	2,943,945	8	989,562	4,059	19,028,252	4,688
1925 ..	286	3,931,942	151	4,707,128	48	3,304,523	9	1,027,153	4,487	20,663,323	4,605
1926 ..	235	3,240,198	120	3,726,023	23	1,423,600	3	353,053	4,860	16,860,772	3,469
1927 ..	234	3,280,459	109	3,364,725	22	1,362,817	2	287,221	5,145	16,642,385	3,235
1928 ..	279	3,899,803	113	3,399,575	24	1,570,488	3	359,384	5,321	18,509,201	3,479
1929 ..	286	4,021,226	127	3,791,241	25	1,570,079	4	475,907	5,565	20,324,303	3,652
1930 ..	313	4,356,680	158	4,635,047	33	2,261,447	4	506,836	5,593	22,542,043	4,030
1931 ..	303	4,144,829	153	4,445,418	35	2,302,423	2	271,882	5,610	22,324,278	3,979
1932 ..	302	4,132,447	109	3,329,982	35	2,323,938	2	266,541	5,483	21,312,865	3,887
1933 ..	273	3,766,895	113	3,338,748	23	1,490,490	1	123,852	5,382	20,072,804	3,730
Decrease —	..	..	..	..	..	..	..	..	—1·84	— 5·82	— 4·04

Table No. XII.

RETURN FOR TEN YEARS SHOWING THE RESULTS OF LAMBING, LOSSES, ETC., IN THE STATE.

For Details for the Year 1933 see Tables No. LII. and LIII.

—	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.
Total Sheep as per Stock Returns on 1st January	16,756,101	19,028,252	20,663,323	16,860,772	16,642,385	18,509,201	20,324,303	22,542,043	22,324,278	21,312,865
Ewes mated with Rams	8,481,332	8,772,276	6,557,034	6,980,529	7,820,137	8,114,502	9,158,966	9,107,493	8,877,345	7,526,979
Lambs Marked	4,833,145	4,638,376	2,245,998	2,481,955	3,995,065	4,257,250	5,625,924	5,013,286	4,243,356	3,336,321
Percentage of Lambing	56·99	52·88	34·25	35·56	51·09	52·46	61·43	55·05	47·80	44·32
Purchases	5,143,617	4,173,815	3,889,789	4,371,786	5,095,420	4,332,101	3,334,721	3,109,122	3,076,159	4,447,856
Sales	5,646,885	4.793,725	4,409,589	4,429,268	5,331,870	4,693,815	4,642,376	5,621,848	5,141,507	5,821,505
Losses	1,877,428	2,197,262	5,335,207	2,449,231	1,693,954	1,851,105	1,840,943	2,449,784	2,920,545	2,935,069
Killed for Food on Holding	180,298	186,133	193,542	193,629	197,845	229,329	259,586	268,541	268,876	267,644
Total Sheep as per Stock Returns on 31st December	19,028,252	20,663,323	16,860,772	16,642,385	18,509,201	20,324,303	22,542,043	22,324,278	21,312,865	20,072,804
Skins obtained †	*182,755	180,852	201,169	232,920	205,797	208,162	219,347	206,204	139,674	159,351

* Estimated. † Year ended 30th June.

Table No. XIII.

RETURN FOR TWO YEARS SHOWING THE NUMBER OF CATTLE, ETC., EXPORTED AND NUMBER KILLED.

YEAR ENDED 31ST DECEMBER.	CATTLE AND CALVES.		SHEEP AND LAMBS.		SWINE.	
	1932.	1933.	1932.	1933.	1932.	1933.
Exported, less number imported alive Oversea	17	28	260	147	...	1
Exported, less number imported alive Overland	209,305	142,626	812,860	17,354	1,701	554
Number killed for export (meatworks, bacon factories, and abattoir)	*269,541	287,218	*507,763	204,915	*287,912	46,643
Number killed for home consumption (meatworks, bacon factories, abattoir, slaughterhouses, stations, and farms)	*326,407	†385,465	*1,249,018	†1,227,677	*95,631	†346,089
Totals	805,270	815,337	2,569,901	1,450,093	385,244	393,287

N.B.—This Table does not include Interstate Coastwise Traffic, which for the six months ended 30th June, 1932, was as follows—**Inward**: Cattle, 17; Sheep, 6; Swine, 2. **Outward**: Nil. Details of Interstate Coastwise Traffic for the year ended December, 1933, not available.

* The 1932 figure refers to all killings at meat establishments, but the 1933 figure represents animals killed for export trade only.

† Includes 6,710 cattle and calves, 2,121 sheep and lambs, and 3,732 swine killed, but subsequently condemned.

Table No. XIV.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF HORSES, CATTLE, SHEEP, AND SWINE IMPORTED INTO AND EXPORTED FROM THE STATE OVERLAND AND OVERSEA.

*Year.		HORSES.		CATTLE.		SHEEP.		SWINE.	
		Inward.	Outward.	Inward.	Outward.	Inward.	Outward.	Inward.	Outward.
		Number.	Number.	Number.	Number.	Number.	Number.	Number.	Number
1924	Overland, Calendar year ..	19,131	19,982	67,681	195,943	222,489	642,055	†	†
	Overland, Financial year ..	24,099	25,425	61,747	256,093	231,325	912,849	†	†
	Oversea, Financial year ..	14	783	..	483	..	25	..	2
1925	Overland, Calendar year ..	25,375	18,032	23,353	243,322	283,795	606,237	†	†
	Overland, Financial year ..	13,838	15,244	29,431	194,608	242,674	461,161	†	†
	Oversea, Calendar year ..	1	3,407	4	53	..	13	†	†
	Oversea, Financial year ..	2	2,901	4	63	..	16	..	6
1926	Overland, Calendar year ..	11,299	15,151	14,530	335,600	448,586	684,498	†	†
	Overland, Financial year ..	22,757	20,619	18,592	335,724	225,579	791,533	†	†
	Oversea, Calendar year ..	..	2,428	..	72	..	6	..	3
	Oversea, Financial year ..	..	3,609	..	49	..	..	..	5
1927	Overland, Calendar year ..	11,461	9,935	108,192	168,730	1,150,437	457,897	†	†
	Overland, Financial year ..	14,696	20,876	71,722	265,384	937,030	630,207	†	†
	Oversea, Calendar year ..	..	634	..	54	..	22	..	50
	Oversea, Financial year ..	..	2,839	..	80	..	17	..	11
1928	Overland, Jan. to June ..	3,804	6,364	4,129	264,225	422,589	351,990	†	†
	Overland, July to Dec. ..	3,277	5,203	5,145	101,877	328,665	317,304	126	3,174
	Oversea, Jan. to June ..	5	2,137	..	18	..	54	..	24
	Oversea, July to Dec. ..								42
1929	Overland, Jan. to June ..	23,561	6,232	51,614	85,028	394,970	220,978	143	4,287
	Overland, July to Dec. ..	4,904	7,682	34,049	95,550	233,915	314,820	134	12,244
	Oversea, Jan. to June ..	..	2,906	..	21	..	316	..	7
	Oversea, July to Dec. ..								20
1930	Overland, Jan. to June ..	5,271	8,579	66,092	84,111	397,616	346,064	201	7,373
	Overland, July to Dec. ..	9,470	10,460	34,709	142,702	215,204	543,794	595	3,751
	Oversea, Jan. to June ..	..	2,492	13	25	..	344	..	3
	Oversea, July to Dec. ..								5
1931	Overland, Jan. to June ..	4,974	8,212	28,147	122,681	156,266	382,188	627	3,497
	Overland, July to Dec. ..	6,783	11,819	24,226	134,406	121,501	812,607	694	1,488
	Oversea, Jan. to June ..	1	147	10	..	..	170	..	..
	Oversea ,July to Dec. ..	..	1,822	..	13	..	310	..	8
1932	Overland, Jan. to June ..	5,368	11,017	13,595	128,879	118,561	537,096	779	2,792
	Overland, July to Dec. ..	5,925	11,666	17,430	111,451	171,706	566,031	903	591
	Oversea, Jan. to June ..	..	2	..	4	..	260	..	..
	Oversea, July to Dec. ..	1	942	..	13	..	..	..	..
1933	Overland, Jan. to June ..	6,160	7,828	21,442	61,104	264,519	172,063	792	1,431
	Overland, July to Dec. ..	5,789	8,925	24,700	127,664	209,042	318,852	476	391
	Oversea, Jan. to June ..	1	8	2	1	..	41	1	3
	Oversea, July to Dec. ..	..	1,820	..	29	..	106	2	1
1934	Overland, Jan. to June ..	5,024	10,237	48,082	160,492	177,227	273,279	1,314	792
	Oversea, Jan. to June ..	..	6	2	13	..	98	..	3

† Not available.

* Interstate coastwise traffic for the six months ended 30th June, 1932, was as follows:—Inward—Horses 47, Value £3,913; Cattle 17, Value £827; Sheep 6, Value £240; Swine 2, Value £50. Outward—Nil.

Table No. XV.

RETURN OF LIVE STOCK AND WOOL CROSSING THE QUEENSLAND BORDERS DURING THE YEAR ENDED 31ST DECEMBER, 1933.

—	HORSES.		CATTLE.		SHEEP.		SWINE.		WOOL.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Bales.	*Value.
		£		£		£		£	No.	£
INWARD.										
From—										
New South Wales ..	8,972	45,757	11,992	49,287	473,561	213,102	1,268	2,498	6,059	75,077
Northern Territory ..	2,198	6,999	33,580	108,812	..	..	..	..	..	..
South Australia ..	779	3,192	570	1,710	..	..	..	..	..	..
Totals	11,949	55,948	46,142	159,809	473,561	213,102	1,268	2,498	6,059	75,077
OUTWARD.										
To—										
New South Wales ..	13,104	78,100	162,635	583,860	474,856	213,685	1,822	3,352	9,740	106,040
Northern Territory ..	1,182	3,828	560	5,600	..	..	..	..	..	..
South Australia ..	2,467	11,970	25,573	190,052	16,059	7,224	..	..	†706	9,690
Totals	16,753	93,898	188,768	779,512	490,915	220,909	1,822	3,352	†10,446	115,730

* Based on Oversea Export Value. † Including 267 bales of scoured wool.

Table No. XVI.

RETURN SHOWING THE NUMBER, &C., OF BACON-CURING AND MEAT-PRESERVING WORKS FOR THE YEAR ENDED 30TH JUNE, 1933, AND INCREASE OR DECREASE ON PREVIOUS YEAR.

Kind of Establishment.	Number.	Number of Hands Employed.	Value of Machinery and Plant.	Value of Land and Premises.	Value of Output.
			£	£	£
Bacon Curing	8	575	97,353	168,946	819,847
Meat Preserving	8	2,109	566,862	1,019,515	3,211,597
Totals, 1932-33	16	2,684	664,215	1,188,461	4,031,444
Totals, 1931-32	16	2,747	770,043	1,363,484	3,219,718
Increase, 1932-33 ...	...	..	...	...	811,726
Decrease, 1932-33 ..	...	63	105,828	175,023	...

Table No. XVII.

RETURN SHOWING NUMBER OF SWINE SLAUGHTERED AND THE PRODUCTS THEREOF, AT MEATWORKS AND ON FARMS, IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE FOR THE YEAR 1933.

Petty Sessions District.	Swine Slaughtered.	Fresh Pork.	Salt and Preserved Pork.	Bacon and Ham.
	Number.	Lb.	Lb.	Lb.
Atherton	36	2,316	450	..
Bowen	15	390	510	90
Brisbane*	220,134	7,327,832	1,405,096	8.909,793
Bundaberg	234	8,907	590	13.839
Clifton	231	3,050	3,642	21,224
Crow's Nest	300	10,591	12,630	10,380
Dalby	180	2.652	5,395	11,934
Gatton	298	12,205	13,559	13,815
Gayndah	276	9.828	20,630	5,156
Gladstone	82	2,700	3,125	1,625
Gympie	117	3.531	4,232	720
Harrisville	215	4,368	5.566	17,085
Killarney	78	1,625	1.828	5,636
Laidley	275	3,519	12,558	24.138
Logan	279	12,574	12,676	16.354
Lowood	174	10.222	14,652	4,155
Mackay	19	310	510	1,075
Marburg	175	3,511	22.451	2,274
Mareeba	8,357	45,900	18,272	561,368
Maryborough	7,918	17.656	93,342	612,711
Nanango	483	12,761	20,238	20,105
Oakey	427	9,709	23,347	19,942
Pittsworth	116	4,036	5,561	5,212
Rockhampton	9,490	337,346	3,043	386,832
Roma	52	2,170	2,420	2,608
Toogoolawah	164	2,161	15,025	1,290
Toowoomba	76,269	2,631	6,766	5,759,514
Warwick	5,371	25,975	2,990	401,885
Wienholt	384	6,000	41.490	1,260
All other Districts	3,060	127,046	93,794	55,019
Totals, 1933	† 335,209	8,013,522	1,866,388	16,887,039

* Including South Brisbane and Wynnum.

† Includes 8,477 swine killed on farms, producing 634,733 lb. of pork and 307,455 lb. of bacon and ham, but excludes 3,732 swine slaughtered, carcases of which were subsequently condemned and boiled down.

N.B.—In addition to the particulars shown in this table, the returns received from slaughter-houses account for 53,791 swine killed, producing 4,586,968 lb. of fresh pork. Thus the total swine killed in the State was 389,000, pork produced 14,466,818 lb., and bacon and ham 16,887,039 lb.

Table No. XVIII.

RETURN FOR TEN YEARS SHOWING THE QUANTITY AND CONDITION OF WOOL SOLD IN THE BRISBANE MARKET AND THE AMOUNT REALISED.

Year ended 30th June.	No. of sales.	Greasy Wool.			Scoured Wool.			Total Greasy and Scoured Wool.		
		No. of bales.	Weight in lb.	Amount Realised.	No. of bales.	Weight in lb.	Amount Realised.	No. of bales.	Weight in lb.	Amount Realised.
				£			£			£
1925	8	255,493	86,815,461	8,619,221	27,033	6,138,215	1,191,975	282,526	92,953,676	9,811,196
1926	10	393,035	131,831,309	9,272,791	26,113	5,694,881	696,036	419,148	137,526,190	9,968,827
1927	7	288,351	94,904,935	7,076,868	28,289	6,079,800	847,811	316,640	100,984,735	7,924,679
1928	7	313,793	103,338,556	8,238,293	27,986	5,961,162	909,878	341,779	109,299,718	9,148,171
1929	8	346,259	113,454,571	7,410,209	30,002	6,201,171	770,577	376,261	119,655,742	8,180,786
1930	10	377,730	122,773,424	5,247,977	33,103	6,744,969	517,696	410,833	129,518,393	5,765,673
1931	10	427,167	139,749,813	5,403,678	29,872	6,171,041	354,427	457,039	145,920,854	5,758,105
1932	11	408,417	131,610,148	4,242,897	37,660	7,691,122	407,395	446,077	139,301,270	4,650,292
1933	10	436,385	141,636,469	5,596,119	64,137	13,387,762	907,239	500,522	155,024,231	6,503,358
1934	7	302,938	97,302,028	6,289,245	50,098	10,469,300	1,164,405	353,036	107,771,328	7,453,650

Table No. XIX.

Return for Ten Years showing the Average Price Realised at the Brisbane Wool Sales.

Year ended 30th June.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932	1933.	1934.
	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.
Greasy wool ..	23·83	16·88	17·90	19·13	15·68	10·26	9·28	7·74	9·48	15·51
Scoured wool ..	46·61	29·33	33·47	36·63	29·82	18·42	13·78	12·71	16·26	26·69

Table No. XX.

WOOL.

Return for Ten Years showing the Number of Sheep Shorn and the Wool Produced in Queensland.

For details for the year ended 30th June, 1933, see Tables No. XLVI., XLVII., and XLVIII.

Production of Wool.	1923.	1924-5.	1925-6.	1926-7.	1927-8.
Number of sheep shorn	17,754,989	18,518,682	20,552,992	17,600,510	16,961,698
Result off Shears only, lb. net—					
Greasy wool	100,964,197	123,078,294	129,361,017	104,308,040	110,611,493
Scoured wool	8,112,704	7,099,421	7,156,291	5,964,445	6,085,234
*Above expressed as "Greasy"	117,189,605	137,277,136	143,673,599	116,236,930	122,781,961
Average weight, lb.—					
Per Greasy bale	348	346	341	335	335
Per Scoured bale	228	238	229	221	217
Per Fleece in the Grease	6·60	7·41	6·99	6·60	7·24
Total wool production (Greasy), including quantity fellmongered, exported on skins, and utilised, lb.	**121,913,075**	**140,862,541**	**146,985,689**	**119,847,967**	**126,429,938**
†Estimated value of production	£12,191,308	£15,553,572	£10,993,305	£9,423,046	£10,635,919

Production of Wool.	1928-9.	1929-30.	1930-31.	1931-32.	1932-33.
Number of sheep shorn	18,438,680	20,733,054	22,778,181	23,183,705	22,407,859
Result off Shears only, lb. net—					
Greasy wool	121,219,173	138,030,120	158,468,047	156,199,991	146,708,631
Scoured wool	6,234,550	8,278,574	7,445,725	9,204,320	12,449,333
*Above expressed as "Greasy"	134,727,365	155,967,030	174,600,451	176,142,684	173,682,186
Average weight, lb.—					
Per Greasy bale	333	333	333	327	329
Per Scoured bale	217	222	215	207	207
Per Fleece in the Grease	7·31	7·52	7·67	7·60	7·75
Total wool production (Greasy), including quantity fellmongered, exported on skins, and utilised, lb.	**138,988,930**	**‡161,087,873**	**‡182,061,407**	**‡184,716,462**	**‡185,833,546**
†Estimated value of production	£9,943,540	£7,785,914	£7,479,689	£6,626,703	£6,976,501

Note—In addition to the above, returns amounting to 36,523,190 lb. of greasy wool shorn, were received for the first six months of 1924.

* From 1st July, 1928, scoured wool has been converted into the estimated greasy equivalent on the assumption that 1lb. scoured wool is produced from 2½ lb. greasy. In previous years a ratio of 1 to 2 was used.

† Based on Export value (Financial Year) as declared to the Customs Department.

‡ Including dead wool (not previously collected).

Table No. XXI.

Return for Ten Years showing the Average Oversea Export Value of Wool from Queensland.

Year ended 30th June.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934.
	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.
Greasy wool ...	26½d.	17·95d.	18·87d.	20·19d.	17·17d.	11·60d.	9·86d.	8·61d.	9·01d.	15·11d.
Scoured wool ...	46d.	30·86d.	31·40d.	34·48d.	31·44d.	22·34d.	14·76d.	13·45d.	14·73d.	24·10d.

Table No. XXII.

Return for Ten Years showing the Quantity and Value of Wool Exported Oversea from Queensland

Exports of Wool, Oversea Only.	Greasy.		Scoured.		Woolled Skins.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Year.	Lb. gross.	£	Lb. gross.	£	Lb. gross.	£
1924-1925	89,761,910	9,902,962	10,888,055	2,089,990	2,461,789	176,910
1925-1926 ...	155,529,190	11,636,937	10,166,018	1,307,051	3,804,570	202,368
1926-1927	92,434,753	7,267,525	9,371,143	1,225,868	3,580,864	171,847
1927-1928	98,572,221	8,290,737	10,645,113	1,529,291	3,330,919	179,349
1928-1929	115,370,996	8,256,965	11,785,858	1,544,164	4,287,380	221,428
1929-1930	122,023,953	5,898,865	10,911,832	1,015,954	5,720,343	177,406
1930-1931	146,129,752	6,005,219	10,890,695	669,823	5,758,382	112,783
1931-1932	149,541,226	5,367,646	14,198,049	795,779	5,018,095	77,968
1932-1933	142,716,884	5,359,620	17,193,918	1,055,563	4,112,509	67,419
1933-1934	128,534,115	8,094,432	18,716,436	1,879,241	2,931,525	84,241

Table No. XXIII.

Return for Ten Years showing the Amount of Scoured Wool used in Manufacture.

	1924-25.	1925-26.	1926-27.	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.	1932-33.	1933-34.
Quantity of Scoured Wool used in manufacture ..	Lb. 544,269	Lb. 654,075	Lb. 625,342	Lb. 625,852	Lb. 477,008	Lb. 572,237	Lb. 440,756	Lb. 541,451	Lb. 791,297	Lb. 740,502

Table No. XXIV.

Return for Two Years showing the Export Oversea of Home Produce.

Value of—	1931-32.		1932-33.	
	Home Produce only.		Home Produce only.	
	Total Exports.	Percentage to Total Exports	Total Exports.	Percentage to Total Exports.
	£		£	
Agricultural and Dairy Products	6,311,421	39·45	4,818,753	31·74
*Pastoral "	8,708,553	54·44	8,603,118	56·66
Mineral "	663,372	4·15	788,788	5·19
Other "	313,891	1·96	973,862	6·41
Totals	£15,997,237	100·00	£15,184,521	100·00

* Exclusive of Furred Skins:— 1931-32, £132,066; 1932-33, £3,477.

Table No. XXV.

Return for Two Years showing the Details of Pastoral Products Exported Oversea.

Value of—	1931-32.	1932-33.	Increase or —Decrease, 1932-33
	Home Produce only.		
	Exports Oversea.	Exports Oversea.	
Pastoral Products—	£	£	£
Wool	6,163,425	6,415,183	251,758
Live stock (Horses, Cattle, and Sheep)	28,878	14,923	— 13,955
*Meat (all kinds, including Extract)	2,091,949	1,793,369	— 298,580
Tallow	199,945	149,252	— 50,693
†Hides and skins	171,601	184,524	12,923
Leather	11,608	8,791	— 2,817
All other	41,147	37,076	— 4,071
Totals	8,708,553	8,603,118	— 105,435

* Exclusive of Bacon, Ham, Pork and Poultry, these being treated as products of Agriculture:—1931-32, £160,316; 1932-33, £140,544.

† Exclusive of Furred Skins:—1931-32, £132,066; 1932-33, £3,477.

Table No. XXVI.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF COMMON GOATS IN THE STATE AND THE NUMBER KILLED FOR FOOD, &C.

Year ended 31st December—	Number Depastured.	Number Killed for Food.	Weight: Lb.	Average Weight: Lb	Number of Skins Obtained.
1924	131,148	21,204	571,619	26·96	8,256
1925	126,752	25,141	717,087	28·52	11,305
1926	86.012	14,252	395,028	27·72	9,409
1927	95.227	16,657	470,378	28·24	10.447
1928	85,622	14,888	417,305	28·03	9,261
1929	82,360	14,983	434,380	28·99	9,581
1930	69,460	11,195	307,177	27·44	6,169
1931	73,789	14,483	375,872	25·95	6,632
1932	76,986	15,175	421,016	27·74	6,057
1933	81,752	16,973	479,312	28·24	*8,082

* Value of Skins, £507.

Table No. XXVII

RETURN FOR TEN YEARS SHOWING THE NUMBER OF ANGORA GOATS IN THE STATE AND THE NUMBER KILLED FOR FOOD, MOHAIR OBTAINED, &C.

Year ended 31st December.	Number of Animals.	Mohair Obtained.	Number Killed for Food.	Weight: Lb.	Average Weight: Lb.	Skins Obtained.
		Lb.				
1924	3,511	1,782	729	21,119	28·97	519
1925	3,923	1,604	554	15,800	28·52	520
1926	3,343	1,532	590	17,003	28·82	487
1927	2,354	1,765	303	9,629	31·78	239
1928	2,938	2,137	673	19,429	28·87	648
1929	2,215	1,425	467	14,127	30·25	360
1930	1,840	1.288	276	8,034	29·11	310
1931	1,683	972	205	5,955	29·05	145
1932	1,516	756	227	6,633	29·22	166
1933	*1,391	†444	178	5,195	29·19	‡106

* Including 16 Saanen Goats. † Value of Mohair, £9. ‡ Value of Skins, £5.

Table No. XXVIII.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF CAMELS, DONKEYS, AND MULES IN THE STATE, TOGETHER WITH THE CENTESIMAL INCREASE OR DECREASE.

Year ended 31st December.	Number of Camels.	Increase or Decrease.	Number of Donkeys.	Increase or Decrease.	Number of Mules.	Increase or Decrease.
1924	362	— 9·27	39	— 39·06	992	— 7·9[illegible]
1925	480	32·60	11	— 71·79	925	— 6·75
1926	313	— 34·79	26	13·64	906	— 2·05
1927	440	40·58	23	— 11·54	898	— 0·88
1928	466	5·91	25	8·70	980	9·13
1929	354	— 24·03	30	20·00	972	— 0·82
1930	215	— 39·27	18	— 40·00	627	— 35·49
1931	433	101·40	33	83·33	838	33·65
1932	502	15·94	44	33·33	798	4·77
1933	702	39·84	91	106·82	1,015	27·19

— Decrease.

Table No. XXIX.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF CALVES RETURNED AS BRANDED AND THE CENTESIMAL INCREASE OR DECREASE. *For details for* 1933 *see Table XXXI.*

Year ended 31st December.	Male.	Increase or Decrease.	Female.	Increase or Decrease.	Total.	Increase or Decrease.
1924	508,342	2·26	554,145	2·64	1,062,487	2·46
1925	612,606	20·51	660,784	19·24	1,273,390	19·85
1926	409,702	— 33·12	450,373	— 31·84	860,075	— 32·46
1927	374,849	— 8·51	420,822	— 6·56	795,671	— 7·49
1928	468,581	25·01	520,986	23·80	989.567	24·37
1929	468,006	— 0·12	528,548	1·45	996,554	0·71
1930 ...	506,434	8·21	565,408	6·97	1,071,842	7·55
1931	489,148	— 3·41	559,251	— 1·09	1,048,399	— 2·19
1932	449,537	— 8·10	534,252	— 4·47	983,789	— 6·16
1933	488,928	8·76	572,843	7·22	1,061,771	7·93

— Decrease.

Table No. XXX.

RETURN SHOWING THE NUMBER OF HORSES, CATTLE, SHEEP, AND SWINE, IN THE VARIOUS PETTY SESSIONS DISTRICTS OF THE STATE, TOGETHER WITH THE INCREASE OR DECREASE OF CATTLE AND SHEEP ON 31ST DECEMBER, 1933.

Petty Sessions District.	Horses.	Cattle.				Sheep.				Swine.
	1933.	1932.	1933.	1933.		1932.	1933.	1933.		1933.
				Increase.	Decrease.			Increase.	Decrease.	
Adavale	934	4,747	5,439	692	..	263,192	185,710	..	77,482	15
Allora	3,495	13,422	14,271	849	..	7,236	8,180	944	..	3,133
Alpha	4,109	51,019	53,328	2,309	..	181,510	179,565	..	1,945	130
Aramac	1,996	3,029	3 067	38	..	324,694	334,738	10,044	..	..
Atherton, Chillagoe, Herberton — Atherton	3,669	52,761	48,235	7,936	..	577	408	..	182	6,854
Chillagoe	2,402	38,617	30,599			..	..			2
Herberton	4,156	63,200	65,155			65	42			566
Mareeba	3,229		18,525				10			163
Augathella	2,255	25,504	27,335	1,831	..	337,248	284,885	..	52,363	27
Ayr	8,113	32,712	35,031	2,319	..	1,325	225	..	1,100	552
Banana	2,017	49,845	54,638	4,793	..	123	210	87	..	128
Barcaldine	1,730	5,047	5,147	100	..	563,092	470,857	..	92,235	157
Beaudesert	4,346	80,632	80,060	..	572	1,302	1,865	563	..	10,024
Biggenden	2,708	45,352	47,287	1,935	..	329	172	..	157	1,670
Blackall	3,036	6,856	7,601	745	..	1,053,421	739,080	..	314,341	83
Bollon	1,647	15,415	13,284	..	2,131	430,973	410,256	..	20,717	41
Boulia	1,801	20,871	35,236	14,365	..	196,361	242,833	46,472	..	37
Bowen	3,701	22,345	24,193	1,848	..	..	..	..	..	379
Brisbane	3,855	22,492	21,972	..	520	198	174	..	24	1,856
Bundaberg	6,205	58,223	58,510	287	..	2,028	2,695	667	..	1,476
Burke	3,042	108,269	99,559	..	8,710	50,616	40,089	..	10,527	68
Caboolture	873	9,320	9,330	10	..	219	190	..	29	783
Cairns	2,297	4,068	4,004	..	64	..	20	20	..	161
Camooweal	2,412	53,526	65,564	12,038	..	13,821	15,098	1,277	..	105
Cape River	5,022	85,257	90,298	5,041	..	355	379	24	..	143
Cardwell	1,233	5,782	5,833	51	..	..	..	..	..	5
Charleville	3,500	26,678	22,776	..	3,902	924,076	770,692	..	153,384	161
Charters Towers	10,122	135,960	155,875	19,915	..	1,022	1,097	75	..	830
Childers	1,932	13,928	14,068	140	..	..	..	..	..	301
Chinchilla	3,624	34,331	53,766	19,435	..	15,948	34,813	18,865	..	1,600
Clermont	8,491	119,456	131,941	12,485	..	456,695	603,248	146,553	..	315
Cleveland	659	1,364	1,491	127	..	30	36	6	..	148
Clifton	5,756	19,766	20,625	859	..	23,408	25,737	2,329	..	4,638
Cloncurry	10,800	185,559	195,492	9,933	..	1,009,767	976,494	..	33,273	354
Coen	2,165	23,850	23,481	..	369	..	..	..	..	..
Collinsville	4,122	126,310	135,968	9,658	..	2	50	48	..	184
Condamine	3,428	49,563	58,752	9,189	..	48,407	38,269	..	10,138	568
Cook	3,854	81,889	81,485	..	404	..	..	..	..	10
Crow's Nest	2,921	27,852	26,956	..	896	504	306	..	198	7,891
Croydon	1,687	22,226	24,209	1,983	..	..	..	..	..	..
Cunnamulla	3,036	15,186	16,798	1,612	..	1,277,285	1,200,360	..	76,925	113
Dalby	9,223	114,925	124,685	9,760	..	617,004	580,289	..	36,715	5,648
Diamantina	1,272	23,238	34,464	11,226	..	8	7	..	1	..
Douglas	1,356	3,743	3,796	53	..	..	..	..	..	117
Dugandan	4,573	43,361	43,279	..	82	145	127	..	18	9,782
Eidsvold	2,532	48,288	54,460	6,172	..	403	385	..	18	676
Emerald	2,156	48,907	48,493	..	414	191,006	211,812	20,806	..	178
Esk	1,792	31,152	31,042	..	110	1,992	838	..	1,154	1,885
Etheridge	8,168	191,255	184,455	..	6,800	..	..	..	..	87
Eulo	838	10,292	7,785	..	2,507	281,073	243,068	..	38,005	4
Gatton	3,866	29,100	28,422	..	678	665	585	..	80	5,252
Gayndah	6,393	136,114	137,708	1,594	..	726	485	..	241	4,679
Gin Gin	3,504	55,509	55,320	..	189	263	255	..	8	424
Gladstone	6,843	145,825	147,725	1,900	..	2,246	2,521	275	..	1.258
Goodna	425	2,470	2,444	..	26	12	11	..	1	133
Goondiwindi	3,344	40,847	46,962	6,115	..	630,813	634,089	3,276	..	423
Gympie	6,077	123,655	124,722	1,067	..	1,029	662	..	367	11,137
Harrisville	2,838	21,205	22,057	852	..	327	367	40	..	4,640
Hughenden	4,420	48,686	54,033	5,347	..	566,344	710,734	144,390	..	201
Hungerford	571	5,474	3,161	..	2,313	146,064	109,683	..	36,381	..
Ingham	7,003	35,280	37,346	2,066	..	140	113	..	27	566
Inglewood	2,306	22,627	21,421	..	1,206	292,156	293,994	1,838	..	611
Innisfail	3,538	3,984	4,864	880	..	174	100	..	74	215
Ipswich	1,705	15,328	15,588	260	..	242	78	..	164	1,087
Isisford	2,348	6,774	6,344	..	430	733,845	498,513	..	235,332	33
Julia Creek	3,161	53,221	58,449	5,228	..	435,673	579,434	143,761	..	2
Jundah	1,774	12,419	16,791	4,372	..	306,150	195,890	..	110,260	..
Kilcoy	1,302	18,256	17,808	..	448	90	155	65	..	2,322
Kilkivan	1,186	21,790	21,384	..	406	93	98	5	..	698
Killarney	2,278	12,496	12,791	295	..	4,849	4,573	..	276	1,084
Laidley	3,052	19,844	19,506	..	338	63	71	8	..	3,866
Logan	1,851	16,708	16,845	137	..	361	327	..	34	1,485
Longreach	5,392	15,318	16,452	1,134	..	1,651,918	1,251,654	..	400,264	133
Lowood	1,844	18,048	17,178	..	870	45	..	..	45	3,289
Mackay	20,987	128,927	135,493	6,566	..	1,701	1,776	75	..	1,111
Marburg	1,374	8,479	8,596	117	..	..	1	1	..	3,177
Maroochy	2,775	43,938	44,289	351	..	404	276	..	128	4,305
Maryborough	5,846	25,568	26,028	460	..	593	548	..	45	784
Mitchell	5,563	63,738	71,059	7,321	..	484,966	487,496	2,530	..	77
Monto	3,494	52,625	52,130	..	495	1,037	1,045	8	..	1,658
Mount Isa	261	485	825	340	..	..	..	..	..	25
Mount Morgan	6,510	74,602	83,401	8,799	..	1,528	1,521	..	7	1,172
Mount Perry	1,447	35,418	32,845	..	2,573	26	30	4	..	55
Muttaburra	2,885	10,140	10,633	493	..	944,916	1,137,123	192,207	..	..
Nanango	10,359	115,377	115,725	348	..	1,888	1,706	..	182	17,653
Norman	6,097	195,165	188,785	..	6,380	5,816	5,504	..	312	..
Oakey	8,494	78,558	79,464	906	..	127,976	132,186	4,210	..	17,205
Pittsworth	6,032	39,368	42,134	2,766	..	175,679	162,950	..	12,729	7,065
Proserpine	4,022	12,333	12,720	387	..	1,714	1,675	..	39	120

Table No. XXX.—*continued.*

RETURN SHOWING THE NUMBER OF HORSES, CATTLE, SHEEP, AND SWINE, IN THE VARIOUS PETTY SESSIONS DISTRICTS OF THE STATE, TOGETHE WITH THE INCREASE OR DECREASE OF CATTLE AND SHEEP ON 31ST DECEMBER, 1933.

Petty Sessions District.	HORSES.	CATTLE.				SHEEP.				SWINE.
				1933.				1933.		
	1933.	1932.	1933.	Increase.	Decrease.	1932.	1933.	Increase.	Decrease.	1933.
Quilpie	2,841	36,017	35,634	..	383	612,750	632,367	19,617	..	58
Ravenswood	1,172	15,627	17,351	1,724	..	..	..	..	..	97
Redcliffe	1,582	19,472	18,999	..	473	359	320	..	39	893
Richmond	5,492	48,126	50,530	2,404	..	706,968	992,565	285,597	..	52
Rockhampton	14,971	335,674	359,013	23,339	..	23,952	23,886	..	66	3,387
Roma	7,414	72,058	74,356	2,298	..	507,632	470,168	..	37,464	889
Rosewood	2,392	24,144	24,194	50	..	561	459	..	102	3,910
St. George	3,779	16,034	22,212	6,178	..	1,206,038	1,091,973	..	114,065	98
St. Lawrence	4,306	113,091	118,707	5,616	..	1,411	2,473	1,062	..	48
Somerset	246	1,004	983	..	21	..	..	..	..	69
Southport	2,088	37,641	38,458	817	..	365	311	..	54	4,212
Springsure	5,566	80,619	86,727	6,108	..	253,574	227,958	..	25,616	77
Stanthorpe	1,679	10,539	10,374	..	165	270,837	268,430	..	2,407	189
Surat	1,800	15,601	15,986	385	..	506,722	483,921	..	22,801	27
Tambo	2,068	16,675	18,071	1,396	..	544,436	447,848	..	96,588	38
Taroom	3,045	114,575	106,562	..	8,013	26,776	22,816	..	3,960	37
Texas	1,262	10,428	12,699	2,271	..	107,599	111,207	3,608	..	252
Thargomindah	2,434	50,434	50,943	509	..	31,120	22,970	..	8,150	30
Tiaro	3,237	54,680	54,262	..	418	480	327	..	153	1,702
Toogoolawah	3,501	57,162	53,904	..	3,258	489	423	..	66	5,151
Toowoomba	6,711	44,944	44,398	..	546	7,608	9,696	2,088	..	7,995
Townsville	3,209	25,147	27,090	1,943	..	1,758	1,424	..	334	977
Warwick	8,055	50,011	52,382	2,371	..	241,893	239,693	..	2,200	4,611
Wienholt	9,773	141,032	140,446	..	586	1,441	506	..	935	18,321
Windorah	3,159	34,740	47,834	13,094	..	212,071	174,827	..	37,244	3
Winton	4,832	31,980	33,775	1,795	..	1,243,908	1,018,136	..	225,772	22
Woodford	1,416	24,516	24,885	369	..	270	453	183	..	2,202
Wynnum	463	1,814	2,001	187	..	4	11	7	..	80
Yeulba	777	8,191	9,303	1,112	..	1,851	4,098	2,247	..	20
Total in State, 1933 ..	450,024	..	*5,781,170	303,801	57,696	..	20,072,804	1,055,882	2,295,943	217,448
Total in State, 1932 ..	452,486	..	†5,535,065	..	..	..	21,312,865	..	..	213,249
Increase, 1933	..	..	..	246,105		..	..	..		4,199
Decrease, 1933	2,462	..	..	..		..	..	1,240,061		..
Centesimal Increase, 1933	..	..	..	4·45		..	..	..		0·20
Centesimal Decrease, 1933	0·54	..	..	..		..	..	5·82		..

* Including 877,409 Dairy Cattle.

† Including 792,943 Dairy Cattle.

NOTE.—Totals of Chinchilla, Condamine, Dalby, and Taroom are comparable only as a whole, owing to alterations in the internal boundaries of these districts.

Table No. XXXI.

RETURN SHOWING NUMBER OF CALVES RETURNED AS BRANDED IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE DURING THE YEARS 1932 AND 1933, THE CENTESIMAL INCREASE OR DECREASE, ALSO THE NUMBER OF CATTLE AND SHEEP KILLED FOR FARM OR STATION USE DURING THE LATTER YEAR.

Petty Sessions District.	Male.			Female.			Cattle Killed.	Sheep Killed.
	1932.	1933.	Increase or Decrease.	1932.	1933.	Increase or Decrease.	1933.	1933.
Adavale	449	491	9·35	417	459	10·07	101	2,492
Allora	1,060	1,056	— 0·38	1,172	1,186	1·19	49	292
Alpha	5,378	5,695	5·89	5,490	5,730	4·37	231	1,922
Aramac	319	344	7·84	315	315	..	30	3,475
Atherton (Atherton)	928	539	8·09	4,115	3,955	1·82	139	..
Chillagoe (Chillagoe)	4,185	1,860		4,314	1,963		154	..
Herberton (Herberton)	5,179	5,672		5,558	6,261		214	10
Mareeba		1,388			1,553		128	..
Augathella	3,727	3,809	2·20	3,722	3,795	1·96	246	4,002
Ayr	2,452	3,128	27·57	2,448	2,848	16·34	93	..
Banana	4,510	5,720	26·83	4,559	5,933	30·14	255	12
Barcaldine	399	467	17·04	347	494	42·36	14	6,174
Beaudesert	2,622	2,163	— 17·51	6,401	6,117	— 4·44	167	220
Biggenden	1,786	1,509	— 15·51	4,377	4,012	— 8·34	205	20
Blackall	1,220	988	— 19·02	1,139	1,052	— 7·64	87	11,420
Bollon	920	882	— 4·13	929	821	— 11·63	223	6,167
Boulia	2,079	2,619	25·97	2,141	2,705	26·34	192	2,323
Bowen	1,818	2,411	32·62	1,823	2,380	30·55	177	..
Brisbane	96	52	— 45·83	1,476	1,393	— 5·62	5	19
Bundaberg	2,606	2,379	— 8·71	4,300	3,923	— 8·77	378	298
Burke	10,950	10,207	— 6·79	11,165	10,345	— 7·34	673	343
Caboolture	135	88	— 34·81	907	861	— 5·07	24	26
Cairns	140	149	6·43	206	203	— 1·46	41	..
Camooweal	6,951	9,118	31·18	6,804	9,249	35·93	477	150
Cape River	6,358	10,884	71·19	6,496	10,839	66·86	456	14
Cardwell	474	546	15·19	399	678	69·92	42	..
Charleville	1,993	1,858	— 6·77	1,938	1,878	— 3·10	284	12,611
Charters Towers	11,311	19,089	68·76	10,913	18,933	73·49	853	41
Childers	894	872	— 2·46	1,130	1,177	4·16	30	..
Chinchilla	3,905	5.744	47·09	4,316	6,403	48·35	207	599
Clermont	10,484	16,027	52·87	10,205	16,282	59·55	659	8,116
Cleveland	10	8	— 20·00	86	81	— 5·81	5	..
Clifton	1,163	1,073	— 7·74	1,942	2,088	7·52	82	1,064
Cloncurry	24,579	24,971	1·59	24,657	25,460	3·26	1,460	7,592
Coen	2,159	2,719	25·94	2,181	2,776	27·28	192	..
Collinsville	10,053	17,402	73·10	10,105	17,115	69·37	598	..
Condamine	6,060	6,783	11·93	6,308	6,708	6·34	674	1,102
Cook	8,606	7,466	— 13·25	8,998	7,255	— 19·37	267	..
Crow's Nest	1,158	980	— 15·37	2,452	1,872	— 23·65	76	10
Croydon	2,179	1,756	— 19·41	2,273	1,821	— 19·89	138	..
Cunnamulla	1,919	1,706	— 11·10	1,957	1,639	— 16·25	136	15,808
Dalby	10,328	10,650	3·12	13,217	13,313	0·73	467	9,073
Diamantina	2,035	2,882	41·62	1,811	2,778	53·40	156	..
Douglas	154	109	— 29·22	277	182	— 34·30	5	..
Dugandan	1,518	1,281	— 15·61	3,128	2,912	— 6·91	89	13
Eidsvold	4,380	4,763	8·74	5,087	5,673	11·52	384	44
Emerald	4,447	5,248	18·01	4,513	5,189	14·98	207	2,808
Esk	1,349	1,126	— 16·53	1,924	1,684	— 12·47	91	56
Etheridge	20,426	15,027	— 26·43	20,490	15,369	— 24·99	962	..
Eulo	563	444	— 21·14	584	456	— 21·92	40	2,886
Gatton	1,302	984	— 24·42	1,718	1,705	— 0·76	84	41
Gayndah	8,812	8,862	0·57	10,258	12,340	20·30	610	121
Gin Gin	4,275	3,624	— 15·23	4,747	3,983	— 16·09	352	30
Gladstone	9,083	8,161	— 10·15	12,138	11,187	— 7·83	579	42
Goodna	89	83	— 6·74	200	163	— 18·50	4	..
Goondiwindi	6,117	5,867	— 4·09	6,351	5,838	— 8·08	203	10,024
Gympie	1,628	1,369	— 15·91	10,636	9,087	— 14·56	331	32
Harrisville	784	558	— 28·83	1,727	1,724	— 0·17	127	..
Hughenden	5,195	6,349	22·21	4,924	6,433	30·65	291	6,342
Hungerford	330	308	— 6·67	307	315	2·61	33	2,387
Ingham	3,099	3,445	11·16	3,074	3,462	12·62	205	..
Inglewood	2,768	2,609	— 5·74	3,099	2,795	— 9·81	209	4,389
Innisfail	235	266	13·19	259	258	— 0·39	9	..
Ipswich	497	400	— 19·52	1,326	1,388	4·68	7	3
Isisford	968	935	— 3·41	1,019	941	— 7·65	76	8,350
Julia Creek	6,164	5,283	— 14·29	6,579	5,616	— 14·64	284	5,609
Jundah	1,585	1,369	— 13·63	1,619	1,414	— 12·66	79	2,163
Kilcoy	410	405	— 1·22	1,406	1,176	— 16·36	55	..
Kilkivan	1,040	964	— 7·31	1,657	1,663	0·36	62	12
Killarney	926	801	— 13·50	1,256	1,135	— 9·63	57	103

Table No. XXXI.—*continued.*

RETURN SHOWING NUMBER OF CALVES RETURNED AS BRANDED IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE DURING THE YEARS 1932 AND 1933, THE CENTESIMAL INCREASE OR DECREASE, ALSO THE NUMBER OF CATTLE AND SHEEP KILLED FOR FARM OR STATION USE DURING THE LATTER YEAR.

Petty Sessions District.	Male.			Female.			Cattle Killed.	Sheep Killed.
	1932.	1933.	Increase or Decrease.	1932.	1933.	Increase or Decrease.	1932.	1933.
Laidley	645	454	— 29·61	1,162	969	— 16·61	87	..
Logan	122	50	— 59·02	1,247	1,107	— 11·23	21	8
Longreach	1,989	1,908	— 4·07	1,991	1,976	— 0·75	161	16,434
Lowood	610	548	— 10·16	932	898	— 3·65	52	..
Mackay	10,707	14,257	33·16	11,390	14,814	30·06	509	54
Marburg	138	91	— 34·06	509	485	— 4·72	73	..
Maroochy	432	377	— 12·73	3,654	3,163	— 13·44	71	6
Maryborough	964	793	— 17·74	2,105	1,852	— 12·02	58	3
Mitchell	8,511	8,901	4·58	8,618	8,973	4·12	455	7,409
Monto	3,229	3,306	2·38	5,079	5,109	0·59	490	20
Mount Isa	50	143	186·00	40	154	285·00	11	..
Mount Morgan	5,384	5,604	4·09	7,117	7,646	7·43	574	73
Mount Perry	2,953	2,460	— 16·69	3,011	2,508	— 16·71	180	..
Muttaburra	986	1,020	3·45	963	1,042	8·20	121	10,863
Nanango	5,912	5,073	— 14·19	10,469	9,433	— 9·90	642	114
Norman	21,208	22,009	3·78	21,472	21,943	2·19	1,240	49
Oakey	3,549	3,238	— 8·76	7,161	6,661	— 6·98	478	2,523
Pittsworth	2,026	2,096	3·46	3,688	3,793	2·85	97	3,367
Proserpine	1,234	1,103	— 10·62	1,338	1,107	— 17·26	47	69
Quilpie	3,944	4,086	3·60	3,743	4,026	7·56	382	7,386
Ravenswood	1,884	2,962	57·22	1,854	2,854	53·94	82	..
Redcliffe	76	57	— 25·00	1,116	1,005	— 9·95	11	15
Richmond	4,427	4,109	— 7·18	4,493	4,397	— 2·14	316	9,216
Rockhampton	29,650	33,382	12·59	32,171	35,588	10·62	1,774	490
Roma	8,669	9,645	11·26	9,029	9,866	9·27	625	7,171
Rosewood	650	452	— 30·46	1,725	1,387	— 19·59	57	121
St. George	1,608	2,207	37·25	1,684	2,152	27·79	299	19,419
St. Lawrence	11,763	14,815	25·95	11,761	14,810	25·92	489	82
Somerset	90	64	— 28·89	76	63	— 17·11	27	..
Southport	446	265	— 40·58	3,211	3,095	— 3·61	44	4
Springsure	9,417	11,651	23·72	9,348	11,607	24·17	522	2,549
Stanthorpe	892	1,061	18·95	851	1,144	34·43	82	3,672
Surat	1,812	2,268	25·17	1,890	2,139	13·17	178	7,561
Tambo	2,089	2,326	11·35	1,985	2,320	16·88	110	6,297
Taroom	12,760	13,985	9·60	12,827	13,922	8·54	777	540
Texas	1,123	1,285	14·43	1,083	1,282	18·37	60	1,943
Thargomindah	4,114	4,033	— 1·97	4,053	3,904	— 3·68	626	273
Tiaro	2,890	2,331	— 19·34	5,019	4,427	— 11·80	256	8
Toogoolawah	2,621	2,185	— 16·63	3,965	3,367	— 15·08	230	9
Toowoomba	1,690	1,436	— 15·03	4,025	4,083	1·44	97	194
Townsville	2,246	3,068	36·60	2,326	2,994	28·72	127	6
Warwick	4,497	4,984	10·83	5,294	5,663	6·97	236	4,332
Wienholt	7,099	5,909	— 16·76	12,699	10,809	— 14·88	605	34
Windorah	3,657	4,957	35·55	3,428	4,786	39·61	410	2,648
Winton	3,610	3,616	0·17	3,629	3,542	— 2·40	406	11,730
Woodford	456	379	— 16·89	2,215	1,959	— 11·56	135	42
Wynnum	4	7	75·00	93	90	— 3·23	..	..
Yeulba	983	1,182	20·24	901	1,192	32·30	123	60
Totals	449,537	488,928	8·76	534,252	572,843	7·22	30,973	267,644

— Decrease.

NOTE.—Totals of Chinchilla, Condamine, Dalby, and Taroom are comparable only as a whole, owing to alterations in the internal boundaries of these districts.

Table No. XXXII.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF CATTLE AND SHEEP KILLED IN THE STATE FOR FARM OR STATION USE, ALSO THE CENTESIMAL INCREASE OR DECREASE. *For details for 1933, see Table XXXI.*

Year ended 31st December.	Cattle.	Increase or Decrease.	Sheep.	Increase or Decrease.
1924	..	..	180,298	— 4·76
1925	*44,721	..	186,133	3·24
1926	38,617	— 13·65	193,542	3·98
1927	35,885	— 7·07	193,629	0·04
1928	32,068	— 10·64	197,845	2·18
1929	28,194	— 12·08	229,329	15·91
1930	24,802	— 12·03	259,586	13·19
1931	26,857	8·29	268,541	3·45
1932	28,791	7·20	268,876	0·12
1933	30,973	— 7·58	267,644	— 0·46

* First year collected.

— Decrease.

Table No. XXXIII.

Return for Ten Years showing the Number of Calves returned as Branded in the several Pastoral Districts of the State.

Year ended 31st December.	Burke.		Burnett.		Cook.		Darling Downs.		Gregory North.		Gregory South.		Leichhardt.		Maranoa.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1924	86,185	88,123	27,832	36,508	41,245	42,920	35,128	41,824	29,870	29,245	17,544	17,491	70,110	71,441	23,414	23,736
1925	103,862	105,081	33,540	43,534	49,704	51,180	42,333	49,873	35,997	34,873	21,142	20,857	84,490	85,189	28,216	28,304
1926	53,868	54,364	27,965	36,879	42,088	43,275	31,968	37,972	16,771	17,460	15,812	16,332	53,921	53,611	22,966	22,900
1927	57,957	58,682	31,635	40,062	40,746	42,888	28,374	34,813	8,684	9,299	10,816	11,022	42,804	43,503	18,010	17,843
1928	67,279	67,954	35,508	47,385	54,459	55,892	35,612	43,770	1,535	1,552	12,676	12,870	66,044	65,327	16,660	16,514
1929	73,733	76,538	37,483	49,664	49,074	51,864	38,616	46,373	2,826	2,828	6,183	5,819	67,980	67,752	18,052	17,758
1930	69,158	68,250	41,851	54,769	52,893	55,761	40,859	48,230	7,318	7,482	5,669	5,566	79,533	80,083	18,128	17,545
1931	72,541	72,645	39,334	54,289	52,572	55,490	42,215	52,101	11,092	11,157	7,917	7,295	75,063	75,376	18,016	17,825
1932	63,072	63,691	32,830	48,809	48,969	53,136	44,526	57,120	14,596	14,336	9,527	9,042	65,958	66,764	18,508	18,902
1933	64,464	65,906	30,842	47,942	41,914	45,924	45,911	58,292	16,281	16,190	10,366	10,050	82,555	83,947	22,041	21,023

Year ended 31st December.	Mitchell.		Moreton.		North Kennedy.		Port Curtis.		South Kennedy.		Warrego.		Wide Bay.		Total.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1924	16,743	16,940	16,906	30,076	46,485	46,655	28,050	31,966	37,346	37,467	19,373	20,077	12,111	19,676	508,342	554,145
1925	20,177	20,200	20,374	35,864	56,020	55,633	33,803	38,117	45,006	44,677	23,347	23,940	14,595	23,462	612,606	660,784
1926	5,777	5,585	15,882	29,238	40,764	40,754	24,059	27,737	26,388	26,163	18,207	17,681	13,266	20,422	409,702	450,373
1927	5,380	5,548	15,406	29,274	40,249	40,221	22,629	26,418	27,388	28,626	11,162	10,745	13,609	21,878	374,849	420,822
1928	7,301	7,424	20,938	37,035	53,152	53,313	32,670	37,791	36,995	36,653	12,402	12,160	15,350	25,346	468,581	520,986
1929	7,770	7,623	25,466	44,262	42,155	42,180	34,860	40,399	37,650	37,355	8,997	9,147	17,161	28,986	468,006	528,548
1930	9,719	9,737	25,456	45,725	44,827	44,962	38,956	42,872	44,004	43,734	10,282	10,360	17,781	30,332	506,434	565,408
1931	7,723	7,751	23,187	45,234	45,145	45,192	38,451	44,380	27,628	27,696	10,668	10,409	17,546	32,411	489,148	559,251
1932	9,337	9,322	18,354	44,632	36,957	37,186	34,265	41,769	26,915	27,286	12,078	11,967	13,645	30,290	449,537	534,252
1933	8,838	8,989	14.865	40,321	53,348	53,413	33,359	41,128	40,167	40,673	12,446	12,366	11,531	26,679	488,928	572,843

TABLE No. XXXIV.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF CATTLE AND SHEEP IN THE SEVERAL PASTORAL DISTRICTS OF THE STATE.

Year ended 31st Dec.	BURKE.		BURNETT.		COOK.		DARLING DOWNS.		GREGORY NORTH.		GREGORY SOUTH.		LEICHHARDT.		MARANOA.	
	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.
1924 ..	844,987	2,654,350	467,061	5,296	502,716	695	430,626	1,478,163	330,000	1,885,035	201,684	292,280	761,349	947,043	311,141	2,416,934
1925 ..	825,822	2,928,780	467,036	5,263	527,624	270	468,389	1,862,217	297,335	1,964,021	176,275	286,189	761,676	979,070	273,224	2,785,128
1926 ..	685,267	1,978,074	440,562	7,487	520,708	12,580	414,433	2,045,745	212,735	1,086,545	135,915	344,859	568,449	840,487	235,658	3,366,810
1927 ..	640,707	2,523,372	463,258	9,815	495,975	3,355	414,658	2,495,527	135,913	1,054,398	152,891	292,261	533,485	1,050,723	213,221	2,951,182
1928 ..	582,748	2,313,118	483,320	7,702	489,935	3,042	429,716	2,637,366	58,147	702,502	112,514	221,216	562,465	1,172,793	188,546	3,366,073
1929 ..	586,242	2,772,704	506,443	8,161	472,041	2,506	450,071	2,945,532	65,545	1,215,608	83,170	203,830	595,395	1,252,201	176,690	3,542,002
1930 ..	624,489	3,118,929	547,920	7,884	480,650	1,818	469,690	2,757,931	76,530	1,708,231	65,443	327,585	646,023	1,264,970	167,801	3,559,542
1931 ..	612,691	3,006,501	568,567	7,092	513,174	1,246	491,550	2,697,272	95,671	1,963,870	87,917	409,808	656,041	931,260	164,581	3,476,600
1932 ..	558,984	2,180,585	548,849	5,644	501,147	751	509,785	2,570,075	122,354	1,802,425	93,710	446,819	657,561	873.221	170,335	3,606,726
1933 ..	589,181	2,676,981	556,088	4,161	499,581	538	552,706	2,543,077	153,281	1,626,633	107,641	432,215	694,426	966,409	179,551	3,357,087

Year ended 31st Dec.	MITCHELL.		MORETON.		NORTH KENNEDY.		PORT CURTIS.		SOUTH KENNEDY.		WARREGO.		WIDE BAY.		TOTAL.	
	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.
1924 ..	202,130	6,384,802	473,197	18,047	491,309	4,069	439,046	24,671	435,105	143,657	237,541	2,765,960	326,761	7,250	6,454,653	19,028,252
1925 ..	196,115	6,696,458	502,658	25,257	503,296	4,528	449,203	27,462	432,297	154,642	236,587	2,938,281	319,108	5,757	6,436,645	20,663,323
1926 ..	114,015	4,135,681	476,828	22,022	454,412	22,214	383,711	28,040	328,545	165,182	191,168	2,799,535	302,439	5,511	5,464,845	16,860,772
1927 ..	90,554	3,715,045	496,342	22,133	442,700	9,928	387,349	29,320	304,395	176,627	152,377	2,303,993	301,979	4,706	5,225,804	16,642,385
1928 ..	68,569	4,893,564	520,775	20,190	461,951	6,589	415,192	29,830	317,997	213,677	128,118	2,915,641	308,348	5,838	5,128,341	18,509,201
1929 ..	67,762	5,337,072	561,468	18,097	454,220	6,718	429,675	33,206	334,775	245,928	101,148	2,735,225	323,943	5,513	5,208,588	20,324,303
1930 ..	74,767	6,280,786	584,841	16,145	462,832	6,950	463,750	31,701	367,446	245,222	96,445	3,208,332	335,097	6,017	5,463,724	22,542,043
1931 ..	72,340	6,126,561	608,304	13,396	435,463	4,195	482,234	28,083	299,127	171,189	103,682	3,481,826	359,050	5,379	5,550,399	22,324,278
1932 ..	85,763	6,071,563	601,566	9,968	437,422	6,140	464,323	27,439	317,989	152,443	113,281	3,554,528	351,996	4,538	5,535,065	21,312,865
1933 ..	80,637	5,124,159	590,867	8,372	472,667	4,684	486,273	27,472	349,810	218,664	114,813	3,077,736	353,648	4,616	5,781,170	20,072,804

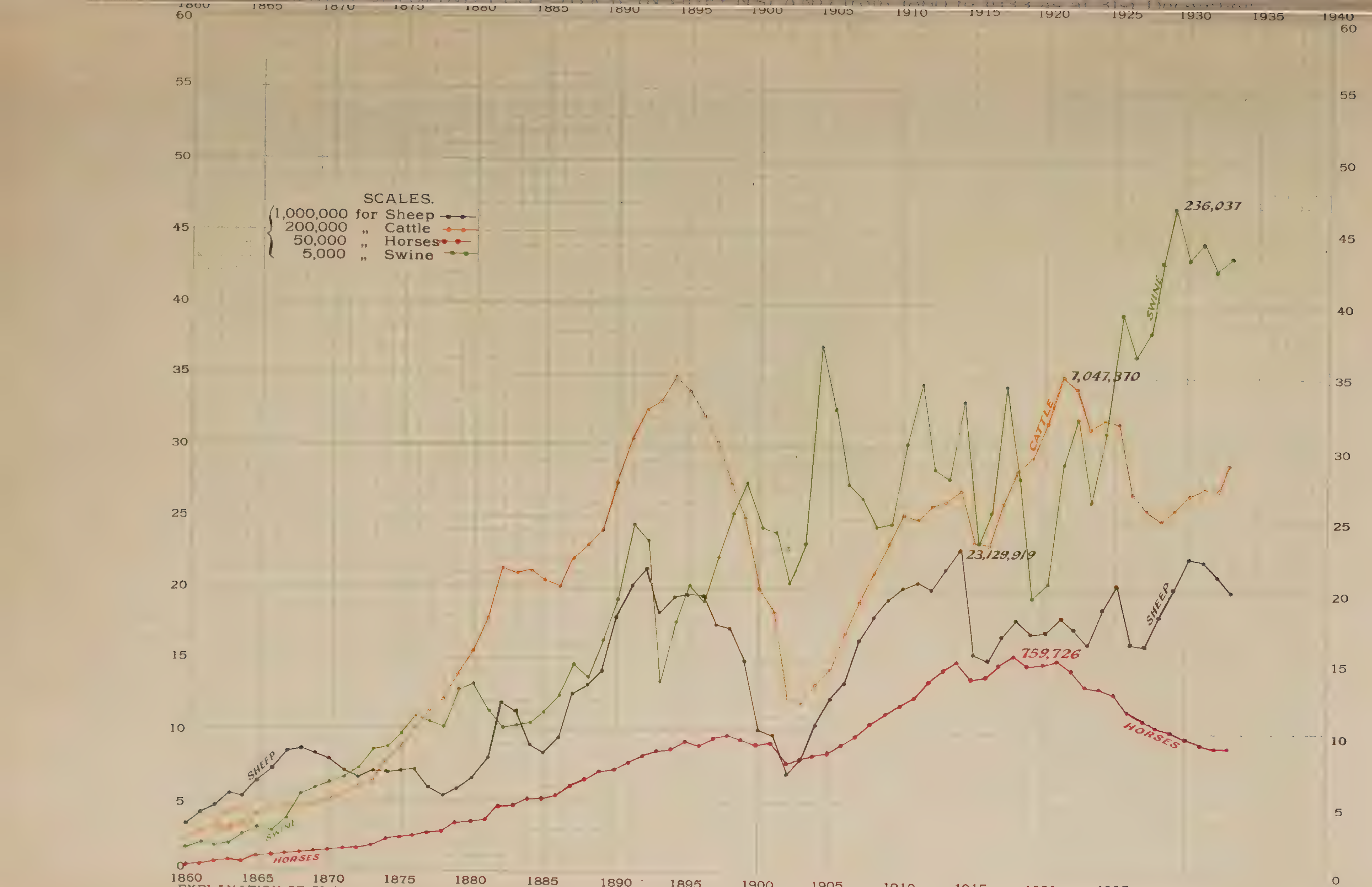
Table No. XXXV.

RETURN OF THE NUMBER OF HORSES, CATTLE, SHEEP, AND SWINE IN THE VARIOUS PASTORAL DISTRICTS OF THE STATE AS AT 31ST DECEMBER, 1932 AND 1933, TOGETHER WITH THE NUMERICAL AND CENTESIMAL INCREASE OR DECREASE IN THE LATTER YEAR.

Pastoral District.	Year.	Horses.	Cattle.	Sheep.	Swine.	Numerical Increase or Decrease — Horses.	Numerical Increase or Decrease — Cattle.	Numerical Increase or Decrease — Sheep.	Numerical Increase or Decrease — Swine.	Centesimal Increase or Decrease — Horses.	Centesimal Increase or Decrease — Cattle.	Centesimal Increase or Decrease — Sheep.	Centesimal Increase or Decrease — Swine.
Burke ...	1932	31,785	558,984	2,180,585	580	..	...	...	...	...	...	...	...
	1933	31,421	589,181	2,676,981	615	— 364	30,197	496,396	35	— 1·15	5·40	22·76	6·03
Burnett ...	1932	35,549	548,849	5,644	42,457	...	...	...	...	...	...	...	...
	1933	34,984	556,088	4,161	42,792	— 565	7,239	— 1,483	335	— 1·59	1·32	—26·28	0·79
Cook ...	1932	34,278	501,147	751	6,979	...	...	...	...	...	...	...	...
	1933	33,640	499,581	538	7,695	— 638	— 1,566	— 213	716	— 1·86	— 0·31	—28·36	10·26
Darling Downs	1932	61,140	509,785	2,570,075	49,383	...	...	...	...	...	...	...	...
	1933	61,959	552,706	2,543,077	51,331	819	42,921	— 26,998	1,948	1·34	8·42	— 1·05	3·94
Gregory North	1932	10,754	122,354	1,802,425	72	...	...	...	...	...	...	...	...
	1933	10,562	153,281	1,626,633	110	— 192	30,927	— 175,792	38	— 1·79	25.28	— 9·75	52·78
Gregory South	1932	5,621	93,710	446,819	14	...	...	...	...	...	...	...	...
	1933	6,139	107,641	432,215	13	518	13,931	— 14,604	— 1	9·22	14·87	— 3·27	— 7·14
Leichhardt ...	1932	38,205	657,561	873,221	1,407	...	...	...	...	...	...	..	...
	1933	38,354	694,426	966,409	1,481	149	36,865	93,188	74	0·39	5·61	10·67	5·26
Maranoa ...	1932	21,473	170,335	3,606,726	881	...	...	...	...	...	...	...	...
	1933	20,337	179,551	3,357,087	1,057	— 1,136	9,216	— 249,639	176	— 5·29	5·41	— 6·92	19·98
Mitchell ...	1932	23,217	85,763	6,071,563	534	...	...	...	...	...	...	...	...
	1933	22,250	80,637	5,124,159	579	-- 967	— 5,126	— 947,404	45	— 4·17	— 5·98	—15·60	8·43
Moreton ...	1932	56,668	601,566	9,968	82,356	...	...	...	...	...	...	...	...
	1933	54,965	590,867	8,372	81,187	— 1,703	— 10,699	— 1,596	—1,169	— 3·01	— 1·78	—16·01	— 1·42
North Kennedy	1932	45,669	437,422	6,140	3,775	...	...	...	...	..	...	...	...
	1933	46,510	472,667	4,684	4,273	841	35,245	— 1,456	498	1·84	8·06	—23·71	13·19
Port Curtis ...	1932	26,636	464,323	27,439	5,351	...	...	...	...	...	...	...	...
	1933	26,641	486,273	27,472	5,907	5	21,950	33	556	0·02	4·73	0·12	10·39
South Kennedy	1932	21,729	317,989	152,443	1,101	...	...	...	...	...	...	...	...
	1933	22,707	349,810	218,664	1,176	978	31,821	66,221	75	4·50	10·01	43·44	6·81
Warrego ...	1932	13,543	113,281	3,554,528	274	...	...	...	...	...	...	...	...
	1933	13,617	114,813	3,077,736	435	74	1,532	— 476,792	161	0·55	1·35	—13·41	58·76
Wide Bay ...	1932	26,219	351,996	4,538	18,085	...	...	...	...	...	...	...	...
	1933	25,938	353,648	4,616	18,797	— 281	1,652	78	712	— 1·07	0·47	1·72	3·94

Pastoral and Petty Sessions Districts.

Pastoral District.	Petty Sessions District.
Burke ...	Burke
	Camooweal
	Mt. Isa
	Richmond
	Cloncurry, part of
	Croydon, part of
	Hughenden, part of
	Julia Creek, part of
	Norman, part of
Burnett ...	Eidsvold
	Gayndah
	Monto
	Mount Perry
	Wienholt
	Biggenden, part of
	Gin Gin, part of
	Nanango, part of
Cook ...	Atherton
	Cairns
	Chillagoe
	Coen
	Cook
	Douglas
	Etheridge
	Innisfail
	Mareeba
	Somerset
	Croydon, part of
	Herberton, part of
	Norman, part of
Darling Downs	Allora
	Chinchilla
	Clifton
	Dalby
	Goondiwindi
	Inglewood
	Killarney
	Pittsworth
	Stanthorpe
Darling Downs —*contd.*	Texas
	Warwick
	Condamine, part of
	Crow's Nest, part of
	Oakey, part of
	Toowoomba, part of
Gregory North	Boulia
	Winton
	Cloncurry, part of
	Diamantina, part of
	Julia Creek, part of
	Jundah, part of
	Windorah, part of
Gregory South	Adavale, part of
	Diamantina, part of
	Quilpie, part of
	Thargomindah, part of
	Windorah, part of
Leich'ardt	Banana
	Emerald
	Springsure
	Taroom
	Clermont, part of
	Condamine, part of
	Mackay, part of
	Mount Morgan, part of
	Rockhampton, part of
	Roma, part of
	St. Lawrence, part of
Maranoa	Bollon
	Mitchell
	St. George
	Surat
	Yeulba
	Charleville, part of
	Cunnamulla, part of
	Roma, part of
Mitchell	Aramac
	Barcaldine
Mitchell —*contd.*	Isisford
	Longreach
	Alpha, part of
	Blackall, part of
	Hughenden, part of
	Jundah, part of
	Muttaburra, part of
	Tambo, part of
Moreton	Beaudesert
	Brisbane
	Caboolture
	Cleveland
	Dugandan
	Esk
	Gatton
	Goodna
	Harrisville
	Ipswich
	Kilcoy
	Laidley
	Logan
	Lowood
	Marburg
	Redcliffe
	Rosewood
	Southport
	Toogoolawah
	Wynnum
	Crow's Nest, part of
	Maroochy, part of
	Nanango, part of
	Oakey, part of
	Toowoomba, part of
	Woodford, part of
North Kennedy	Ayr
	Bowen
	Cardwell
	Charters Towers
	Ingham
North Kennedy —*contd.*	Proserpine
	Ravenswood
	Townsville
	Cape River, part of
	Collinsville, part of
	Herberton, part of
Port Curtis	Gladstone
	Bundaberg, part of
	Mackay, part of
	Mount Morgan, part of
	Rockhampton, part of
	St. Lawrence, part of
South Kennedy	Alpha, part of
	Cape River, part of
	Clermont, part of
	Collinsville, part of
	Mackay, part of
	Muttaburra, part of
Warrego	Augathella
	Eulo
	Hungerford
	Adavale, part of
	Blackall, part of
	Charleville, part of
	Cunnamulla, part of
	Quilpie, part of
	Tambo, part of
	Thargomindah, part of
Wide Bay	Childers
	Gympie
	Kilkivan
	Maryborough
	Tiaro
	Biggenden, part of
	Bundaberg, part of
	Gin Gin, part of
	Maroochy, part of
	Woodford, part of



EXPLANATION OF GRAPH.—The base of each small square represents an interval of one year, and the vertical height of each square denotes in the case of sheep, 1,000,000; in the case of cattle, 200,000; in the case of horses, 50,000; and in the case of swine, 5,000.

Table No. XXXVI.

RETURN FOR TEN YEARS SHOWING THE DENSITY OF LIVE STOCK IN THE STATE.

(In Converting Horses and Cattle to terms of Sheep, Ten Head of Sheep are taken as Equal to One Horse or Head of Cattle.)

Year.	Horses.			Cattle.			Sheep.			All Kinds in terms of Sheep.		
	Acres per Head.	Number per Square Mile.	Number per Capita Population.	Acres per Head.	Number per Square Mile.	Number per Capita Population.	Acres per Head.	Number per Square Mile.	Number per Capita Population.	Acres per Head.	Number per Square Mile.	Number per Capita Population.
1924...	650	0·98	0·80	66	9·63	7·85	23	28·38	23·14	4·76	134·49	109·68
1925...	672	0·95	0·76	67	9·60	7·62	21	30·82	24·46	4·69	136·34	108·19
1926...	751	0·85	0·66	79	8·15	6·34	25	25·15	19·55	5·56	115·18	89·53
1927...	783	0·82	0·63	82	7·79	5·96	26	24·82	18·99	5·77	110·94	84·86
1928...	821	0·78	0·59	84	7·65	5·76	23	27·61	20·77	5·72	111·88	84·19
1929...	858	0·75	0·55	82	7·77	5·77	21	30·31	22·52	5·54	115·45	85·79
1930...	891	0·72	0·53	79	8·15	5·96	19	33·62	24·58	5·23	122·29	89·42
1931...	914	0.70	0·50	77	8·28	5·97	19	33·29	24·01	5·20	123·08	88·74
1932 ..	948	0·67	0·48	78	8·26	5·89	20	31·79	22·69	5·29	121·09	86·43
1933...	954	0·67	0·47	74	8·62	6·09	21	29·94	21·15	5·21	122·87	86·79

Table No. XXXVII.

RETURN SHOWING THE NUMBER OF OWNERS AND THE SIZES OF HERDS OF CATTLE UNDER VARIOUS GROUPINGS IN THE SEVERAL PASTORAL DISTRICTS OF THE STATE AS AT 31ST DECEMBER, 1933.

Pastoral Districts.	1 to 100.		101 to 200.		201 to 300.		301 to 500.		501 to 1,000.	
	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.
Burke	380	10,524	52	7,729	19	4,529	26	10,576	41	30,245
Burnett	4,194	187,247	653	89,768	194	48,187	122	47,244	90	63,644
Cook	1,711	52,294	131	17,856	41	9,931	33	13,688	17	12,486
Darling Downs ..	7,362	257,437	764	107,197	192	47,201	115	43,887	58	40,127
Gregory North ..	145	3,498	14	2,151	8	2,086	5	2,037	14	10,146
Gregory South ..	63	2,136	14	2,019	9	2,133	10	3,875	10	7,507
Leichhardt	2,000	43,732	228	33,191	122	31,071	119	46,861	147	105,659
Maranoa	1,329	38,847	141	19,603	53	13,271	33	12,832	33	23,746
Mitchell	699	17,912	51	7,055	20	4,797	21	8,341	22	15,643
Moreton	10,569	341,001	816	112,437	161	39,941	102	38,913	51	34,630
North Kennedy ..	2,048	41,732	119	17,048	53	13,204	58	22,945	49	35,144
Port Curtis	2,715	94,333	369	53,018	95	24,441	113	44,205	76	54,542
South Kennedy ..	977	23,731	81	12,095	33	8,167	40	16,160	49	33,500
Warrego	479	15,085	47	6,675	26	6,490	24	9,904	20	14,524
Wide Bay	5,393	167,515	489	66,680	100	24,880	57	22,205	41	29,151
Totals ..	40,064	1,297,024	3,969	554,522	1,126	280,329	878	343,673	718	510,694

Pastoral Districts.	1,001 to 5,000.		5,001 to 10,000.		10,001 and upwards.		Totals.	
	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.
Burke	37	81,029	24	170,732	16	273,817	595	589,181
Burnett	57	103,315	2	16,683	..	..	5,312	556,088
Cook	50	126,583	9	64,932	10	201,811	2,002	499,581
Darling Downs	34	56,857	..	..	..	..	8,525	552,706
Gregory North	20	45,915	6	40,577	3	46,871	215	153,281
Gregory South	13	28,229	7	49,734	1	12,008	127	107,641
Leichhardt	135	283,793	20	136,565	1	13,554	2,772	694,426
Maranoa	20	36,820	5	34,432	..	..	1,614	179,551
Mitchell	13	26,889	..	..	..	..	826	80,637
Moreton	18	23,945	..	..	..	..	11,717	590,867
North Kennedy	71	166,096	12	87,148	5	89,350	2,415	472,667
Port Curtis	87	165,217	7	50,517	..	..	3,462	486,273
South Kennedy	50	102,555	14	98,752	4	54,850	1,248	349,810
Warrego	17	31,210	2	16,587	1	14,338	616	114,813
Wide Bay	23	43,217	..	..	..	..	6,103	353,648
Totals..	645	1,321,670	108	766,659	41	706,599	47,549	5,781,170

Table No. XXXVIII.

RETURN SHOWING THE NUMBER OF OWNERS AND THE SIZES OF HERDS OF CATTLE UNDER VARIOUS GROUPINGS IN THE SOUTHERN, CENTRAL, AND NORTHERN DIVISIONS OF THE STATE AS AT 31ST DECEMBER, 1933.

Division.	1–100.		101–200.		201–300.		301–500.		501–1,000.		1,001–5,000.		5,001–10,000.		10,001 and Upwards.		Totals.	
	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.
Southern	29,689	1,020,199	3,014	417,545	782	194,217	499	192,629	331	232,399	207	375,646	19	137,810	3	39,900	34,544	2,610,345
Central	5,390	151,736	600	86,527	210	53,078	242	95,884	256	181,196	256	528,486	38	262,415	3	46,871	6,995	1,406,193
Northern ..	4,985	125,089	355	50,450	134	33,034	137	55,160	131	97,099	182	417,538	51	366,434	35	619,828	6,010	1,764,632
Totals ..	40,064	1,297,024	3,969	554,522	1,126	280,329	878	343,673	718	510,694	645	1,321,670	108	766,659	41	706,599	47,549	5,781,170

Table No. XXXIX.

RETURN SHOWING THE NUMBER OF OWNERS AND THE SIZES OF FLOCKS OF SHEEP UNDER VARIOUS GROUPINGS IN THE SEVERAL PASTORAL DISTRICTS OF THE STATE AS AT 31ST DECEMBER, 1933.

Pastoral Districts	1 to 500.		501 to 1,000.		1,001 to 2,000		2,001 to 5,000.		5,001 to 10,000.		10,001 to 20,000.		20,001 to 50,000.		50,001 to 100,000.		100,001 and Upwards.		Totals	
	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.
Burke ...	37	4,229	7	4,726	20	31,929	131	485,235	132	913,745	47	649,849	16	455,672	2	131,596	...	...	392	2,676,981
Burnett ...	89	3,461	1	700	...	...	...	...	...	...	...	...	...	...	...	...	...	...	90	4,161
Cook ...	10	538	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10	538
Darling Downs ...	726	120,935	264	198,872	274	411,519	240	746,129	72	494,789	23	286,513	10	284,320	...	...	...	...	1,609	2,543,077
Gregory North ...	15	2,505	4	3,275	8	12,924	62	225,171	58	397,619	14	202,661	19	590,002	3	192,476	...	...	183	1,626,633
Gregory South ...	4	716	4	2,912	5	7,595	20	72,628	13	87,034	9	137,025	2	45,949	1	78,356	...	...	58	432,215
Leichhardt ...	123	16,701	57	44,105	64	96,829	77	246,798	30	197,486	8	122,637	6	188,343	1	53,510	...	...	366	966,409
Maranoa ...	162	34,107	120	92,515	214	326,425	276	927,970	130	906,802	41	602,669	15	408,426	1	58,173	...	...	959	3,357,087
Mitchell ...	46	6,953	29	22,122	62	97,148	233	824,113	223	1,542,268	84	1,152,084	30	883,980	7	471,639	1	123,852	715	5,124,159
Moreton ...	239	6,062	2	1,241	1	1,069	...	...	...	..	...	...	...	...	...	...	...	...	242	8,372
North Kennedy ...	34	3,345	2	1,339	...	...	...	...	...	...	..	...	...	...	...	...	...	...	36	4,684
Port Curtis ...	67	3,816	16	3,662	2	3,694	3	7,600	1	8,700	...	...	...	...	...	...	...	..	89	27,472
South Kennedy ...	19	2,123	9	7,053	8	11,546	14	46,863	8	50,811	3	37,117	...	...	1	63,151	...	...	62	218,664
Warrego ...	30	4,491	12	9,677	52	87,198	186	632,990	120	843,395	44	576,340	15	482,056	7	441,589	...	...	466	3,077,736
Wide Bay ...	104	2,304	...	...	..	...	1	2,312	...	...	...	...	...	...	...	...	...	..	105	4,616
Totals ...	1,705	212,286	527	392,199	710	1,087,876	1,243	4,217,809	787	5,442,649	273	3,766,895	113	3,338,748	23	1,490,490	1	123,852	5,382	20,072,804

Table No. XL.

RETURN SHOWING THE NUMBER OF OWNERS AND THE SIZES OF FLOCKS OF SHEEP UNDER VARIOUS GROUPINGS IN THE SOUTHERN, CENTRAL, AND NORTHERN DIVISIONS OF THE STATE AS AT 31ST DECEMBER, 1933.

Division.	1–500.		501–1,000.		1,001–2,000.		2,001–5,000.		5,001–10,000.		10,001–20,000.		20,001–50,000.		50,001–100,000.		100,001 and Upwards.		TOTALS.	
	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.
Southern ..	1,394	177,672	414	314,989	551	841,587	735	2,419,363	338	2,349,688	117	1,602,547	42	1,220,751	9	578,118	..	..	3,600	9,504,715
Central ..	218	25,527	101	68,340	135	208,818	372	1,297,114	314	2,160,322	107	1,484,192	54	1,638,262	12	780,776	1	123,852	1,314	7,787,203
Northern ..	93	9,087	12	8,870	24	37,471	136	501,332	135	932,639	49	680,156	17	479,735	2	131,596	..	..	468	2,780,886
Totals ..	1,705	212,286	527	392,199	710	1,087,876	1,243	4,217,809	787	5,442,649	273	3,766,895	113	3,338,748	23	1,490,490	1	123,852	5,382	20,072,804

Table No. XLI.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF HORSES, CATTLE, SHEEP, AND SWINE, IN THE SOUTHERN, CENTRAL, AND NORTHERN DIVISIONS OF THE STATE.

YEAR ENDED 31ST DEC.	SOUTHERN.				CENTRAL.				NORTHERN.			
	Horses.	Cattle.	Sheep.	Swine.	Horses.	Cattle.	Sheep.	Swine.	Horses.	Cattle.	Sheep.	Swine.
1924	282,832	2,579,890	7,002,123	135,095	164,953	1,814,023	9,330,342	8,416	212,308	2,060,740	2,695,787	12,652
1925	281,290	2,580,216	7,930,357	173,948	153,725	1,777,503	9,757,837	10,651	203,357	2,078,926	2,975,129	14,999
1926	268,496	2,327,553	8,620,821	158,517	125,561	1,292,426	6,187,335	9,658	177,565	1,844,866	2,052,616	15,487
1927	258,952	2,322,633	8,118,128	166,178	114,805	1,149,911	5,928,454	10,155	174,576	1,753,260	2,595,803	15,614
1928	253,377	2,299,516	9,224,903	187,582	109,510	1,115,865	6,886,846	10,852	159,603	1,712,960	2,397,452	17,330
1929	244,604	2,332,195	9,520,339	204,291	104,807	1,184,999	7,943,392	11,571	150,693	1,691,394	2,860,572	20,175
1930	235,769	2,408,854	9,957,562	189,248	101,806	1,290,133	9,353,534	9,270	144,040	1,764,737	3,230,947	19,010
1931	233,390	2,524,266	10,160,434	199,717	103,419	1,310,131	9,072,850	8,095	132,665	1,716,002	3,090,994	14,874
1932	225,662	2,536,342	10,274,672	193,652	100,097	1,319,371	8,753,213	7,177	126,727	1,679,352	2,284,980	12,420
1933	223,465	2,610,345	9,504,715	195,853	99,099	1,406,193	7,787,203	7,843	127,460	1,764,632	2,780,886	13,752

Table No. XLII.

RETURN FOR TEN YEARS SHOWING THE ESTIMATED NUMBER OF CATTLE, SHEEP, ETC., SLAUGHTERED FOR CONSUMPTION AS FOOD IN THE STATE, TOGETHER WITH THE AVERAGE DRESSED WEIGHT OF EACH ANIMAL AND THE ESTIMATED QUANTITY CONSUMED PER CAPITA (EXCLUSIVE OF SLAUGHTERINGS AT MEATWORKS FOR PRESERVATION).

Year.	Mean Population for the Year. ¶	NUMBER SLAUGHTERED.					AVERAGE DRESSED WEIGHT.					‡ CONSUMPTION PER CAPITA.					
		Cattle.	Sheep.	Calves.	Lambs.	Swine.	Cattle.	Sheep.	Calves.	Lambs.	Swine.	Beef.	Mutton.	Veal.	Lamb.	Pork.	Total.
							lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
1924	814,135	282,516	421,874	42,330	23,843	57,402	547	43	51	30	88	189·82	22·28	2·65	0·88	6·20	221·83
1925*	836,920	333,095	580,566	49,691	19,969	66,398	543	42	50	30	82	216·11	29·14	2·97	0·72	6·51	255·45
1926*	857,170	321,795	656,458	51,170	19,866	72,145	550	44	79	31	83	206·48	33·70	4·72	0·72	6·99	252·61
1927*	870,762	316,661	641,636	43,122	24,329	68,580	572	42	83	30	83	208·01	30·95	4·11	0·84	6·54	250·45
1928*	884,958	307,791	725,375	45,793	19,570	73,917	540	42	76	30	83	187·81	34·43	3·93	0·66	6·93	233·76
1929*	897,734	287,023	858,563	43,527	26,403	83,526	539	43	47	31	89	172·33	41·12	2·28	0·91	8·28	224·92
1930*	910,510	260,522	1,110,997	46,286	31,058	79,407	525	41	52	30	87	150·45	50·42	2·65	1·03	7·60	212·15
1931*	925,039	255,213	1,210,090	47,662	38,509	96,616	532	42	52	30	84	146·65	54·68	2·70	1·25	8·82	214·10
1932*†	935,809	271,809	1,186,476	54,598	62,542	95,631	522	42	60	30	84	151·49	53·57	3·53	1·98	8·59	219·16
1933*†	945,706	302,669	1,170,363	76,086	55,193	§342,357	531	41	61	28	§103	169·79	50·76	4·92	1·64	§37·27	264·38

NOTE.—Total value of By-Products for 1933 was £349,680.

* Figures based on actual collection.

† Includes 30,973 Cattle, 267,644 Sheep, and 8.477 Swine killed on Farms and Stations.

‡ Figures revised on adjusted census populations. The figures from 1930 onwards are calculated on actual production, previous to this they are calculated on averages shown herein.

¶ Adjusted census populations.

§ Includes pigs slaughtered at abattoir for meatworks.

Table No. XLIII.

Return for Ten Years of Live Stock Slaughtered at Meatworks and Bacon Factories for Preservation as Food, for Freezing, or for Tallow, in the State, with the Quantity and Value of Meat, Tallow, Lard, Etc., Produced.

Year.	Number of Establishments.	Average Number of Hands Employed.	Number Slaughtered.								Meat Preserved or Frozen.										Extract and Essence of Meat Produced.	Quantity of Tallow Produced.	Quantity of Lard Produced.	Total Value of all Products shown here.
			Cattle.			Sheep.			Lambs.	Swine.	Beef.			Mutton.			Lamb.		Bacon and Ham.	Pork, Salt and Fresh.				
			For Freezing.	For Preserving.	For Boiling Down.	For Freezing.	For Preserving.	For Boiling Down.			Frozen.	Fresh, Preserved.	Salted.	Frozen.	Fresh, Preserved.	Salted.	Frozen.	Fresh, Preserved.						
											Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Tons.	Lb.	£
1923 ...	17	3,007	225,297	16,807	3,672	54,002	476	263	318	200,234	126,584,907	10,721,227	7,410	1,992,922	18,846	...	11,130	..	16,219,969	541,923	107,921	4,825	833,159	2,494,136
1924-25	19	4,371	539,135	25,144	4,044	452	78	...	...	206,454	295,294,239	23,042,674	77,600	17,082	7,877	...	...	..	†15,334,549	†63,553	182,503	10,931	766,360	4,921,665
1925-26	19	4,211	363,011	29,480	2,513	34,702	35	...	63	243,505	201,983,990	15,570,166	32,800	1,265,319	1,451	...	2,205	...	†18,013,086	†913,026	141,283	7,767	895,925	4,107,662
1926-27	20	3,564	179,694	14,043	938	2,942	...	...	...	208,016	100,744,934	9,859,202	27,662	121,956	...	...	...	...	†17,971,692	†671,137	60,516	3,042	767,376	2,320,059
1927-28	19	3,813	364,860	14,919	433	3,777	...	...	...	241,871	215,856,923	9,053,287	70,263	161,757	...	...	...	...	†17,986,523	†649,078	77,764	5,302	839,959	3,847,224
1928-29	18	3,872	316,677	14,322	1,213	58,936	...	64	1,516	307,371	194,444,901	9,293,369	345,125	2,623,254	...	1,688	46,859	.	†21,710,900	†1,289,112	84,283	6,455	1,112,954	4,179,275
1929-30	17	3,454	287,239	14,803	1,168	179,550	7,060	133	18,269	283,065	174,004,557	7,752,595	25,897	7,558,955	262,169	...	535,898	...	†18,924,040	†2,235,411	78,843	3,682	989,890	4,003,892
1930-31	17	3,225	328,790	11,676	1,199	486,463	828	465	41,434	328,649	199,829,633	5,810,442	380,549	20,746,284	29,695	18,687	1,289,983	...	†19,842,633	†7,274,913	65,894	4,158	993,936	3,838,161
1931-32	16	2,747	227,204	9,051	1,519	466,292	7,922	4,588	34,573	311,599	132,573,771	3,654,234	3,000	20,563,645	299,958	...	1,110,969	...	†19,639,692	†5,161,284	81,743	3,457	1,083,818	2,438,287
1932-33	16	2,684	§260,125	*10,625	**1,465	¶226,593	4,040	325	‡56,082	‖279,701	143,665,333	4,303,516	13,404	9,968,761	102,658	...	1,742,377	...	†16,701,874	†4,230,437	31,459	2,444	893,216	3,162,820

N.B.—8,915 swine killed by farmers and 866,407 lb. of pork and bacon made therefrom during 1932 are not included in this table.

† Not including farmers' bacon and pork.

* In addition 225 cattle for small goods.

‡ In addition 65,534 lambs for local consumption, producing 1,893,900lb. lamb.

§ In addition 109,581 cattle and calves for local consumption, producing 45,063,654lb beef and veal.

¶ In addition 480,495 sheep killed for local consumption, producing 19,397,684lb. mutton.

‖ In addition 37,026 swine killed for local consumption, producing 2,797,183lb. pork.

** In addition 1,183 cattle for meat flour.

Table No. XLIV.

Return for Ten Years showing the Quantity and Value of Other Products of Meat Preserving, Etc., Establishments in the State.

Year.	No.	Hides.		Skins.		Edible Fats.		Bones.		Hoofs and Horns.	Hair.		Oils, &c.		Manure.		All Other Products.	Total Value.
		Number.	£	Number.	£	Lb.	£	Tons.	£	£	Lb.	£	Gallons.	£	Tons.	£	£	£
1923	17	245,843	313,978	55,059	27,291	5,379,914	137,750	385	7,692	11,861	169,874	10,098	17,894	4,933	4,718	50,657	340,600	904,860
1924-25	19	568,134	678,377	559	337	4,465,038	280,525	845	12,801	27,956	188,801	16,452	45,700	10,363	9,191	80,224	536,070	1,643,105
1925-26	19	394,110	471,505	34,800	26,081	10,753,803	213,596	570	5,867	20,144	173,899	5,218	34,134	7,633	5,970	50,198	453,734	1,253,976
1926-27	20	194,641	260,470	2,942	1,189	5,926,129	113,821	223	2,122	7,929	129,149	2,927	14,797	3,424	4,761	43,963	424,203	860,048
1927-28	19	369,927	718,253	4,048	1,849	9,070,227	197,418	348	3,379	9,397	159,603	4,602	19,899	4,735	5,626	54,959	579,453	1,574,045
1928-29	18	329,162	463,693	63,146	22,857	10,574,003	231,239	306	3,324	11,211	101,132	4,033	18,584	5,242	4,831	49,046	552,685	1,343,330
1929-30	17	298,455	298,953	209,757	35,619	10,862,045	203,281	194	2,156	8,466	56,523	2,395	13,832	3,142	4,066	45,096	488,046	1,087,154
1930-31	17	338,653	325,698	532,484	73,520	13,031,746	182,898	316	3,541	10,239	46,460	2,773	18,125	3,817	4,935	48,653	411,852	1,062,991
1931-32	16	233,985	189,009	456,858	87,305	8,771,038	99,432	159	1,834	4,546	23,170	1,172	11,902	2,363	3,616	29,821	365,949	781,431
1932-33	16	329,482	286,139	881,262	165,083	11,436,961	118,513	143	1,470	7,238	30,340	1,394	13,487	2,618	3,634	29,764	256,405	868,624

Note.—The Total Value of Production of the Cattle Industry for 1932-33 has been estimated at, approximately, £4,689,142.

Table No. XLV.

RETURN SHOWING THE PURE BREEDS OF CATTLE AS RETURNED IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE FOR THE YEAR ENDED 31ST DECEMBER, 1933.

Petty Session District.	Aberdeen Angus.	Ayrshire.	Devon.	Friesian.	Guernsey.	Hereford.	Jersey.	Milking Shorthorn and Aust. Illawarra Shorthorn.	Red Polled.	Shorthorn.	Crossed and Unspecified.	Total.
Adavale	..	..	..	..	..	250	..	..	..	2,338	2,851	5,439
Allora	410	..	..	1	..	..	18	61	..	277	13,504	14,271
Alpha	..	..	..	..	..	3	..	..	..	20,026	33,299	53,328
Aramac	..	1	..	..	..	..	..	23	..	324	2,719	3,067
Atherton	..	..	8	..	18	..	1,196	2,919	..	522	43,572	48,235
Augathella	..	..	..	60	..	..	..	..	..	774	26,501	27,335
Ayr	..	36	..	..	..	..	58	647	540	11,285	22,465	35,031
Banana	..	..	..	69	..	15,095	84	269	..	216	38,905	54,638
Barcaldine	..	..	..	..	..	..	20	..	60	518	4,549	5,147
Beaudesert	..	21	..	16	5	351	531	1,401	..	47	77,688	80,060
Biggenden	..	3	..	9	40	16	827	1,114	..	2	45,276	47,287
Blackall	..	30	..	..	..	210	71	44	..	2,170	5,076	7,601
Bollon	..	..	..	..	..	125	4	..	..	1,135	12,020	13,284
Boulia	..	..	..	..	..	..	..	..	..	11,274	23,962	35,236
Bowen	..	4	..	..	..	10	5	16	18	806	23,334	24,193
Brisbane	2	220	..	41	..	..	479	177	3	2	21,048	21,972
Bundaberg	2	91	..	8	6	1,731	536	358	..	3	55,775	58,510
Burke	7	..	..	..	..	..	..	..	2	13,005	86,545	99,559
Caboolture	..	..	..	..	..	..	126	39	..	1	9,164	9,330
Cairns	..	4	..	..	..	..	20	62	..	7	3,911	4,004
Camooweal	..	..	..	..	..	..	..	..	..	38,130	27,434	65,564
Cape River	..	..	5	..	..	1,452	63	..	..	11,961	76,817	90,298
Cardwell	..	..	..	..	..	..	..	21	..	..	5,812	5,833
Charleville	..	..	..	..	..	2,035	82	32	8	1,831	18,788	22,776
Charters Towers	15	..	528	..	..	150	342	85	..	24,487	130,268	155,875
Childers	..	..	..	..	..	762	106	125	..	74	13,001	14,068
Chillagoe	..	..	..	..	..	..	..	..	..	..	30,599	30,599
Chinchilla	207	10	..	36	..	*708	210	1,697	17	2,022	48,859	53,766
Clermont	100	..	..	..	..	†60	60	107	..	65,422	66,192	131,941
Cleveland	..	11	..	..	..	..	9	1	..	..	1,470	1,491
Clifton	..	6	..	14	2	71	51	271	..	152	20,058	20,625
Cloncurry	..	..	..	..	..	..	12	..	112	93,166	102,202	195,492
Coen	..	..	..	..	..	..	..	..	..	..	23,481	23,481
Collinsville	..	1	..	..	..	11	..	..	30	12,646	123,280	135,968
Condamine	226	2	..	..	..	719	1	823	..	3,408	53,573	58,752
Cook	..	..	..	..	..	900	..	..	..	8,058	72,527	81,485
Crow's Nest	..	1	..	1	..	..	298	170	1	145	26,340	26,956
Croydon	..	..	..	..	..	..	..	..	..	..	24,209	24,209
Cunnamulla	239	..	..	..	..	264	2	..	..	9,175	7,118	16,798
Dalby	37	166	..	173	1	5,361	622	907	151	5,163	112,104	124,685
Diamantina	..	..	..	..	..	..	..	..	..	4,439	30,025	34,464
Douglas	..	..	..	..	..	..	62	150	..	..	3,584	3,796
Dugandan	..	..	..	102	3	111	344	766	1	143	41,809	43,279
Eidsvold	40	1	..	1	..	9,789	23	428	..	202	43,976	54,460
Emerald	..	90	..	1	..	4,965	4	10	..	5,024	38,399	48,493
Esk	..	..	..	..	..	817	23	225	..	..	29,977	31,042
Etheridge	..	..	..	..	..	1,115	..	..	..	1,315	182,025	184,455

Table No. XLV.—*continued.*

Return showing the Pure Breeds of Cattle as Returned in the Several Petty Sessions Districts of the State for the Year ended 31st December, 1933—*continued.*

Petty Sessions District.	Aberdeen Angus.	Ayrshire.	Devon.	Friesian.	Guernsey.	Hereford.	Jersey.	Milking Shorthorn and Aust. Illawarra Shorthorn.	Red Polled.	Shorthorn.	Crossed and Unspecified.	Total.
Eulo	..	..	..	..	..	..	2	..	..	3,771	4,012	7,785
Gatton	..	19	..	29	..	674	254	203	..	57	27,186	28,422
Gayndah	90	48	..	11	..	16,638	919	2,742	100	1,161	115,999	137,708
Gin Gin	2	..	..	..	..	3,602	194	8	..	117	51,397	55,320
Gladstone	325	34	..	46	..	‡18,233	985	2,592	84	2,131	123,295	147,725
Goodna	..	..	..	..	..	..	124	3	..	..	2,317	2,444
Goondiwindi	219	5	..	..	..	4,221	56	55	..	6,047	36,359	46,962
Gympie	..	156	..	146	40	1,420	2,468	4,049	..	710	115,733	124,722
Harrisville	10	1	..	..	1	202	127	729	..	55	20,932	22,057
Herberton	2	..	165	..	3	..	337	16	..	228	64,404	65,155
Hughenden	40	3	..	..	..	9,497	63	5	2,457	8,015	33,953	54,033
Hungerford	..	..	..	..	..	..	..	..	..	582	2,579	3,161
Ingham	..	..	2	2	..	..	14	9	..	11	37,308	37,346
Inglewood	86	..	..	3	..	555	53	540	5	§2,376	17,803	21,421
Innisfail	..	..	..	..	..	..	41	25	..	156	4,642	4,864
Ipswich	..	..	..	39	..	..	611	231	..	7	14,700	15,588
Isisford	..	..	11	..	..	..	34	8	..	3,831	2,460	6,344
Julia Creek	..	..	..	..	..	..	23	..	115	1,545	56,766	58,449
Jundah	..	..	..	..	..	..	1	..	..	6,125	10,665	16,791
Kilcoy	..	..	..	20	..	..	48	339	..	..	17,401	17,808
Kilkivan	..	1	2	..	..	1,213	268	814	..	190	18,896	21,384
Killarney	..	..	576	..	..	72	168	366	..	1	11,608	12,791
Laidley	..	..	..	1	..	..	394	337	..	314	18,460	19,506
Logan	..	157	..	..	..	..	169	100	..	..	16,419	16,845
Longreach	147	..	..	26	..	..	72	89	10	6,875	9,233	16,452
Lowood	..	..	..	..	..	1,603	41	175	20	1	15,338	17,178
Mackay	225	15	..	19	..	‖54	530	721	1	5,216	128,712	135,493
Marburg	..	..	..	18	..	..	134	171	..	..	8,273	8,596
Mareeba	..	..	..	10	..	..	109	40	..	1,102	17,264	18,525
Maroochy	..	161	..	5	79	1	1,785	3,048	..	64	39,146	44,289
Maryborough	..	298	..	6	..	430	225	258	1	32	24,778	26,028
Mitchell	..	..	..	28	..	3,098	10	30	18	1,205	66,670	71,059
Monto	8	..	..	17	2	¶5,830	518	1,653	1	324	43,777	52,130
Mount Isa	..	..	..	..	..	..	..	..	..	200	625	825
Mount Morgan	..	2	..	55	..	**5,699	697	406	1,226	17	75,299	83,401
Mount Perry	..	..	..	..	..	..	1	5	..	..	32,839	32,845
Muttaburra	36	..	..	..	..	5	25	47	2	4,664	5,854	10,633
Nanango	833	33	..	282	41	3,949	1,223	3,981	225	4,100	101,058	115,725
Norman	..	..	..	..	..	200	..	..	..	31,967	156,618	188,785
Oakey	700	172	..	98	33	††854	1,165	1,403	31	479	74,529	79,464

Table No. XLV.—*continued.*

RETURN SHOWING THE PURE BREEDS OF CATTLE AS RETURNED IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE FOR THE YEAR ENDED 31ST DECEMBER, 1933—*continued.*

Petty Sessions District.	Aberdeen Angus.	Ayrshire.	Devon.	Friesian.	Guernsey.	Hereford.	Jersey.	Milking Shorthorn and Aust. Illawarra Shorthorn.	Red Polled.	Shorthorn.	Crossed and Unspecified.	Total.
Pittsworth	..	234	..	153	4	192	139	813	20	834	39,745	42,134
Proserpine	29	..	..	..	..	748	47	29	30	25	11,812	12,720
Quilpie	..	..	..	..	..	..	..	..	..	12,048	23,586	35,634
Ravenswood	..	..	..	..	..	..	1	..	..	1	17,349	17,351
Redcliffe	..	67	..	1	5	..	64	86	..	..	18,776	18,999
Richmond	76	..	..	..	..	7,266	118	99	428	11,787	30,756	50,530
Rockhampton	250	229	1,500	63	..	‡‡40,531	1,165	1,844	251	4,353	308,827	359,013
Roma	101	1	..	..	..	§§1,957	217	396	1	13,713	57,970	74,356
Rosewood	40	..	..	..	..	..	130	59	..	..	23,965	24,194
St. George	5	..	..	..	..	7	68	40	..	6,230	15,862	22,212
St. Lawrence	448	..	..	..	..	16,209	..	64	15	2,074	99,897	118,707
Somerset	..	..	..	..	..	..	..	1	..	..	982	983
Southport	..	9	..	556	43	1	418	1,226	..	447	35,758	38,458
Springsure	25	..	..	..	..	1,373	9	..	1	9,927	75,392	86,727
Stanthorpe	452	9	1	1	..	1,127	81	..	..	2	8,701	10,374
Surat	..	..	..	..	..	2,700	33	..	..	4,623	8,630	15,986
Tambo	..	..	..	..	..	..	30	..	..	11,622	6,419	18,071
Taroom	..	..	5	..	..	27,039	..	..	..	10,474	69,044	106,562
Texas	..	..	..	..	..	..	111	201	..	411	11,976	12,699
Thargomindah	..	..	..	..	..	1	..	..	..	7,390	43,552	50,943
Tiaro	188	20	..	..	1	1,097	712	1,797	..	1	50,446	54,262
Toogoolawah	1,396	..	10	336	..	3,209	165	1,129	..	1,828	45,831	53,904
Toowoomba	..	100	..	213	40	..	1,211	1,376	43	880	40,535	44,398
Townsville	18	8	..	56	..	..	9	144	57	1,058	25,740	27,090
Warwick	588	56	1	30	..	870	481	1,449	225	477	48,205	52,382
Wienholt	450	42	..	347	1	7,320	1,115	3,972	603	1,188	125,408	140,446
Windorah	..	..	..	..	..	..	..	..	..	5,881	41,953	47,834
Winton	1	..	..	..	..	..	24	..	..	16,832	16,918	33,775
Woodford	56	3	..	32	96	3	465	564	1	19	23,646	24,885
Wynnum	..	..	..	..	..	..	12	8	..	..	1,981	2,001
Yeulba	..	..	..	..	..	1,064	1	64	..	5	8,169	9,303
Totals	8,131	2,581	2,814	3,181	464	237,845	27,003	53,507	6,914	569,501	4,869,229	5,781,170

* Including 5 Polled Hereford.
† Including 60 Polled Hereford.
‡ Including 140 Polled Hereford.
§ Including 1,401 Polled Durham.
|| Including 1 Polled Hereford.
¶ Including 33 Polled Hereford.
** Including 64 Polled Hereford.
†† Including 12 Polled Hereford.
‡‡ Including 30 Polled Hereford.
§§ Including 165 Polled Hereford.

Table No. XLVI.

RETURN SHOWING DETAILS OF SHEEP SHORN AND WOOL PRODUCED IN THE SEVERAL PASTORAL DISTRICTS OF QUEENSLAND DURING THE TWELVE MONTHS ENDED 30TH JUNE, 1933.

Pastoral District.	Classification of Sheep Shorn.						Result of Clip.				All Wool Expressed as Greasy.*
	Ewes.	Wethers.	Weaners and Hoggets.	Lambs.	Rams.	Total.	Greasy Wool.		Scoured Wool.		
							Bales.	Lb.	Bales.	Lb.	Lb.
Burke	1,364,793	775,330	192,850	140,344	32,856	2,506,173	31,667	10,813,625	16,719	3,422,372	18,228,764
Burnett	2,426	1,059	426	114	33	4,058	88	26,620	..	..	26,620
Cook	227	266	19	..	4	516	13	3,219	..	..	3,219
Darling Downs	977,927	1,129,091	293,537	150,927	18,053	2,569,535	60,123	18,476,455	..	..	18,476,455
Gregory North	983,547	418,566	214,853	130,212	23,881	1,771,059	24,997	8,874,052	13,564	2,764,843	14,864,545
Gregory South	200,187	79,636	45,938	47,772	6,170	379,703	7,182	2,419,744	1,222	274,995	3,015,567
Leichhardt	384,732	452,450	36,770	50,972	7,976	932,900	20,200	6,597,058	28	7,130	6,612,506
Maranoa	1,859,610	1,010,176	509,132	267,665	43,474	3,690,057	87,376	27,635,409	1,536	321,639	28,332,294
Mitchell	3,553,297	1,639,832	897,626	412,324	93,227	6,596,306	126,593	42,848,112	20,484	4,383,350	52,345,371
Moreton	3,010	3,120	334	244	71	6,779	139	45,192	..	..	45,192
North Kennedy	1,781	1,860	341	281	59	4,322	83	24,871	9	1,362	27,822
Port Curtis	13,217	7,190	2,229	631	254	23,521	451	140,017	..	..	140,017
South Kennedy	58,597	82,140	3,373	5,642	1,903	151,655	3,343	1,106,635	58	9,493	1,127,203
Warrego	1,907,631	926,198	497,616	382,781	53,801	3,768,027	83,583	27,674,961	6,484	1,264,076	30,413,792
Wide Bay	1,118	1,882	154	71	23	3,248	63	2,2661	..	73	22,819
Totals	11,312,100	6,528,796	2,695,198	1,589,980	281,785	22,407,859	445,901	146,708,631	60,104	12,449,333	173,682,186
Quantity of wool returned as greasy by growers but subsequently scoured							− 23,815	− 7,835,542	+ 17,460	+ 3,616,404	
Total remaining greasy							422,086	138,873,089			
Total scoured							..	..	77,564	16,065,737	
Quantity of wool fellmongered							..	..	14,978	3,102,381	6,721,826
Grand total scoured and fellmongered							..	..	92,542	19,168,118	
Estimated quantity of wool on skins other than fellmongered							..	..	..	..	5,396,200
Quantity of dead wool returned by owners excluded from clip							..	..	..	..	33,334
Grand total all wool produced expressed as greasy							..	..	..	..	185,833,546
Estimated value of total wool produced							..	..	† £6,976,501		

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* Scoured wool has been converted into its greasy equivalent on the basis of 2½ lb. greasy being required to produce 1 lb. scoured wool.

† Based on Oversea Export Value, as declared to the Customs Department.

Table No. XLVII.

Return showing the Average Weight per Fleece in the Pastoral Districts of Queensland for Ten Years.

Pastoral District.	Average Weight of Clip per Sheep in Greasy Wool.										
	1923.	1924:25.	1925-6.	1926-7.	1927-8.	1928-9.	1929-30.	1930-1.	1931-2.	1932-3.	Increase or Decrease 1933 on 1932.
	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
Burke	6·09	6·81	6·44	5·48	6·76	6·56	6·99	6·84	7·19	7·27	0·08
Burnett	6·25	5·19	5·76	6·07	5·04	5·32	5·62	6·10	5·88	6·56	0·68
Cook	7·00	3·68	6·72	4·15	4·76	4·21	5·01	5·84	5·22	6·24	1·02
Darling Downs ..	6·99	7·52	7·18	7·08	7·39	7·41	7·26	7·58	7·59	7·19	— 0·40
Gregory North ..	6·23	6·95	6·73	5·72	7·05	6·60	7·91	7·82	7·70	8·39	0·69
Gregory South ..	7·04	7·76	7·39	7·83	7·07	7·60	7·79	8·27	7·97	7·94	— 0·03
Leichhardt	6·50	6·87	6·38	5·39	6·65	6·51	6·64	6·69	6·27	7·09	0·82
Maranoa	7·14	7·63	7·08	7·96	7·57	7·63	7·89	7·75	7·94	7·68	— 0·26
Mitchell	6·41	7·52	7·11	5·88	7·38	7·59	7·79	8·04	7·38	7·92	0·54
Moreton	6·78	6·91	5·97	6·55	5·88	6·42	6·72	6·25	6·90	6·67	— 0·23
North Kennedy ..	5·35	4·24	5·37	5·88	6·15	5·60	5·63	4·54	5·66	6·44	0·78
Port Curtis	5·36	5·35	6·31	5·63	5·16	5·25	5·14	5·20	6·20	5·95	— 0·25
South Kennedy ..	6·53	6·64	6·02	5·77	7·20	6·69	6·66	6·59	6·04	7·43	1·39
Warrego	7·30	7·99	7·46	7·51	7·32	7·63	7·63	8·08	8·38	8·07	— 0·31
Wide Bay	7·14	5·77	4·50	5·28	5·13	5·32	6·23	5·54	5·74	7·03	1·29
Totals	6·60	7·41	6·99	6·60	7·24	7·31	7·52	7·67	7·60	7·75	0·15

Table No. XLVIII.

Return showing Skins and Dead Wool obtained on Sheep Holdings, Value of Machinery thereon, and Average Weight of Greasy and Scoured Bales in the various Pastoral Districts of Queensland during the Twelve Months ended 30th June, 1933.

Pastoral District.	Skins and Dead Wool Sold or Utilised by Wool Growers.		Machinery on Sheep Holdings.	Average Weight per Bale of Wool Clip.	
	Sheep Skins.	Dead Wool.	Value.	Greasy.	Scoured.
	No.	Lb.	£	Lb.	Lb.
Burke	10,953	1,128	289,983	341	205
Burnett	153	..	545	303	..
Cook	50	..	100	248	..
Darling Downs	29,347	21,578	372,277	307	..
Gregory North	9,613	707	391,214	355	204
Gregory South	1,353	..	73,087	337	225
Leichhardt	6,235	..	196,331	327	255
Maranoa	23,632	3,736	324,008	316	209
Mitchell	48,057	3,667	757,144	338	214
Moreton	523	268	1,221	325	..
North Kennedy	24	..	480	300	151
Port Curtis	307	..	5,169	310	..
South Kennedy	617	100	52,339	331	164
Warrego	28,075	2,150	298,393	331	195
Wide Bay	412	..	166	360	..
Totals	159,351	33,334	2,762,457	329	207

Table No. XLIX.

Return showing the Total Number of Sheep Shorn and the Result of the Clip in each of the Three Financial Divisions of the State for the Twelve Months ended 30th June, 1933.

Division.	Total Number of Sheep Shorn.	Result of the Clip.				Total Clip.		Average per Fleece in Grease.
		Greasy.		Scoured.		Expressed as Greasy.	Per Centage to Total.	
		Bales.	Lb.	Bales.	Lb.	Lb.		Lb.
Southern	10,499,009	240,395	76,838,040	9,242	1,860,783	80,869,737	46·56	7·70
Central	9,318,791	172,142	58,501,656	34,061	7,149,345	73,991,903	42·60	7·94
Northern	2,590,059	33,364	11,368,935	16,801	3,439,205	18,820,546	10·84	7·27
Totals.. ..	22,407,859	445,901	146,708,631	60,104	12,449,333	173,682,186	100·00	7·75

Table No. L.

RETURN FOR EIGHT YEARS SHOWING THE PROPORTION OF THE CLIP IN EACH OF THE THREE FINANCIAL DIVISIONS TO THE TOTAL CLIP OF THE STATE.

Financial Division.	1925-6.	1926-7.	1927-8.	1928-9.	1929-30.	1930-1.	1931-2.	1932-3.
	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Southern ..	39·20	55·20	50·08	50·60	46·89	44·71	47·04	46·56
Central ..	47·72	33·58	36·47	37·23	40·28	42·37	38·87	42·60
Northern ..	13·08	11·22	13·45	12·17	12·83	12·92	14·09	10·84

Table No. LI.

RETURN SHOWING THE BREEDS OF SHEEP IN QUEENSLAND ON 31ST DECEMBER, 1933; ALSO THE NUMBER OF SHEEP UNDER ONE YEAR, AND ONE YEAR AND OVER, ON THAT DATE.

Pastoral District.	BREEDS.				Total Sheep on 31st Dec., 1933.	AGES.		
	Merino.	Pure Breeds other than Merino.	Merino Comeback.	Crossbreeds and *Unspecified.		Under One Year.	One Year and Over.	Unspecified. *
Burke	2,674,475	..	..	2,506	2,676,981	396,979	2,270,352	9,650
Burnett	83	*a* 198	1,316	2,564	4,161	664	2,617	880
Cook	220	..	..	318	538	50	321	167
Darling Downs	2,424,165	*b* 4,476	60,268	54,168	2,543,077	357,791	2,179,710	5,576
Gregory North	1,616,366	*c* 10,210	..	57	1,626,633	304,894	1,321,652	87
Gregory South	432,215	..	..	..	432,215	82,437	349,778	..
Leichhardt	959,497	..	4,261	2,651	966,409	125,753	840,509	147
Maranoa	3,347,300	*d* 320	7,313	2,154	3,357,087	457,165	2,899,922	..
Mitchell	5,123,789	..	..	370	5,124,159	682,553	4,441,606	..
Moreton	2,260	*e* 438	344	5,330	8,372	1,121	4,929	2,322
North Kennedy	561	..	150	3,973	4,684	568	3,155	961
Port Curtis	10,033	*d* 8,711	4,070	4,658	27,472	4,630	22,548	294
South Kennedy	217,143	..	..	1,521	218,664	33,891	184,773	..
Warrego	3,077,370	..	..	366	3,077,736	443,149	2,626,790	7,797
Wide Bay	2,000	..	270	2,346	4,616	249	3,213	1,154
Totals	19,887,477	*f* 24,353	77,992	82,982	20,072,804	2,891,894	17,151,875	29,035
Percentage to Total Sheep ..	99·08	0·12	0·39	0·41	100·00	14·41	85·45	0·14

*Mainly butchers' and ration sheep.

a Border Leicester, 1; Corriedale, 197. *b* Border Leicester, 182; Corriedale, 4,033; Dorset Horn, 42; Lincoln, 15; Romney Marsh, 168; South Down, 36. *c* Polwarth. *d* Corriedale. *e* Border Leicester, 2; Corriedale, 241; Romney Marsh, 195. *f* Border Leicester, 185; Corriedale, 13.502; Dorset Horn, 42; Lincoln, 15; Polwarth, 10,210; Romney Marsh, 363; South Down, 36.

Table No. LII.

RETURN SHOWING THE RESULTS OF LAMBING, LOSSES, SHEEP KILLED FOR FOOD ON HOLDINGS, ETC., IN THE SEVERAL PASTORAL DISTRICTS OF THE STATE DURING THE YEAR 1933.

Pastoral District.	Total Sheep as per Stock Returns on 1st Jan., 1933.	Ewes Mated with Rams.	Lambs Marked.	Percentage of Lambing.	Purchases and Transfers.	Sales and Transfers.	Total Losses. *	Killed for Food on Holding.	Total Sheep as per Stock Returns on 31st Dec., 1933.	Skins Obtained. †
Burke	2,180,585	1,128,871	420,124	37·22	687,854	332,429	254,405	24,748	2,676,981	10,953
Burnett	5,644	1,101	752	68·30	1,079	2,247	738	329	4,161	153
Cook	751	104	98	94·23	281	412	180	..	538	50
Darling Downs ..	2,570,075	632,241	369,930	58·51	932,117	1,039,936	246,627	42,482	2,543,077	29,347
Gregory North ..	1,802,425	792,614	321,752	40·59	285,226	551,671	214,980	16,119	1,626,633	9,613
Gregory South ..	446,819	199,554	75,941	38·06	225,106	228,277	81,427	5,947	432,215	1,353
Leichhardt	873,221	306,274	137,827	45·00	334,591	205,807	160,194	13,229	966,409	6,235
Maranoa	3,606,726	1,127,651	531,072	47·10	602,769	857,389	473,278	52,813	3,357,087	48,057
Mitchell	6,071,563	2,139,009	927,191	43·35	840,051	1,657,397	993,043	64,206	5,124,159	23,632
Moreton	9,968	1,862	1,290	69·28	5,285	5,940	1,434	797	8,372	523
North Kennedy ..	6,140	1,077	605	56·17	1,706	2,862	779	126	4,684	24
Port Curtis ..	27,439	9,212	4,966	53·91	5,480	5,247	4,547	619	27,472	307
South Kennedy ..	152,443	59,992	34,471	57·46	93,849	33,106	26,720	2,273	218,664	617
Warrego	3,554,528	1,126,613	509,876	45·26	430,137	896,956	476,286	43,563	3,077,736	28,075
Wide Bay	4,538	804	426	52·99	2,325	1,829	451	393	4,616	412
Totals ..	21,312,865	7,526,979	3,336,321	44·32	4,447,856	5,821,505	2,935,089	267,644	20,072,804	159,351

*For details, *see* Table LIII.

†Year ended 30th June, 1933.

Table No. LIII.

RETURN SHOWING DETAILS OF LOSSES IN SHEEP DURING THE YEAR 1933

Pastoral District.	* LOSSES AND THE CAUSES AS RETURNED BY OWNERS AND THE PERCENTAGE OF EACH CAUSE TO TOTAL LOSSES.																		TOTAL LOSSES AND PERCENTAGE TO TOTAL SHEEP ON 31ST DECEMBER.			
	Cancer. (Senile Necrosis)		Dingoes.		Drought.		Flood.		Fly.		Lambing.		Old Age.		Shearing.		†Other.		1933.		1932.	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Burke	7,807	3·07	8,556	3·37	125,480	49·32	8,220	3·23	28,272	11·11	17,383	6·83	34,538	13·58	12,955	5·09	*a* 11,194	4·40	254,405	9·50	742,015	34·03
Burnett	56	7·59	245	33·20	98	13·28	..	..	112	15·17	13	1·76	93	12·60	5	0·68	*b* 116	15·72	738	17·74	1,100	19·49
Cook	1	0·56	26	14·44	..	..	2	1·11	1	0·56	3	1·67	24	13·33	..	..	*b* 123	68·33	180	33·46	55	7·32
Darling Downs	1,452	0·59	17,244	6·99	60,131	24·38	1,865	0·76	28,786	11·67	19,860	8·05	30,726	12·46	35,731	14·49	*c* 50,832	20·61	246,627	9·70	278,828	10·85
Gregory North	5,358	2·49	16,221	7·55	94,808	44·10	7,935	3·69	16,061	7·47	16,202	7·54	40,412	18·80	6,545	3·04	*d* 11,438	5·32	214,980	13·22	330,614	18·34
Gregory South	1,060	1·30	18,139	22·28	26,369	32·38	4,164	5·12	3,870	4·75	3,582	4·40	19,866	24·40	2,290	2·81	*e* 2,087	2·56	81,427	18·84	49,770	11·14
Leichhardt	1,483	0·93	13,786	8·61	43,724	27·29	10,750	6·71	54,709	34·15	8,307	5·19	13,398	8·36	8,522	5·32	*f* 5,515	3·44	160,194	16·58	138,786	15·89
Maranoa	1,829	0·39	11,280	2·38	305,585	64·57	2,995	0·63	46,556	9·84	31,104	6·57	39,546	8·36	17,133	3·62	*g* 17,250	3·64	473,278	14·10	339,120	9·40
Mitchell	9,707	0·98	17,586	1·77	646,163	65·07	23,761	2·39	81,656	8·22	30,336	3·06	111,885	11·27	36,661	3·69	*h* 35,288	3·55	993,043	19·38	684,688	11·28
Moreton	61	4·25	425	29·64	169	11·78	..	..	39	2·72	44	3·07	223	15·55	48	3·35	*j* 425	29·64	1,434	17·13	1,531	15·36
North Kennedy	3	0·39	82	10·53	3	0·39	..	..	21	2·70	16	2·05	132	16·94	4	0·51	*b* 518	66·49	779	16·63	850	13·84
Port Curtis	71	1·56	203	4·47	1,108	24·37	41	0·90	262	5·76	378	8·31	773	17·00	94	2·07	*b* 1,617	35·56	4,547	16·55	4,208	15·34
South Kennedy	458	1·71	3,155	11·81	12,958	48·50	92	0·34	4,931	18·45	868	3·25	1,683	6·30	581	2·18	*k* 1,994	7·46	26,720	12·22	33,901	22·24
Warrego	6,159	1·29	13,564	2·85	311,968	65·50	14,362	3·02	39,335	8·26	26,311	5·52	40,196	8·44	12,685	2·66	*l* 11,706	2·46	476,286	15·48	314,682	8·85
Wide Bay	..	..	94	20·84	24	5·32	1	0·22	51	11·31	3	0·66	51	11·31	4	0·89	*b* 223	49·45	451	9·77	397	8·75
Totals	35,505	1·21	120,606	4·11	1,628,588	55·49	74,188	2·53	304,662	10·38	154,410	5·26	333,546	11·36	133,258	4·54	150,326	5·12	2,935,089	14·62	2,920,545	13·70

*Losses of unmarked lambs are not taken into consideration.

†Causes included in Other—

a Blight, bogging, droving, eagle hawks, poison weed.

b Worms.

c Blight, bloat, crows, dipping, domestic dogs, drenching, foxes, grass seed, hail, lamb marking, poison weed, rain, travelling, worms.

d Blight, bogging, droving, heat, jetting, poison weed

e Droving, poison weed.

f Blight, bogging, grass seed, poison weed, rain, spear grass, worms.

g Blight, dipping, droving, grass seed, lamb marking, lice, poison weed, worms.

h Blight, bogging, crutching, grass seed, poison weed, rain, travelling, worms.

j Domestic dogs, scrub ticks, worms.

k Lamb marking, poison weed, worms.

l Bogging, foxes, lamb marking, poison weed, rain, worms.

Table No. LIV.

RETURN SHOWING NUMBER OF HOLDINGS IN VARIOUS GROUPINGS AND SHEEP THEREON IN THE SEVERAL PASTORAL DISTRICTS AS AT 31ST DECEMBER, 1933.

Pastoral District.	1 AND UNDER 50 ACRES.		50 AND UNDER 100 ACRES.		100 AND UNDER 500 ACRES.		500 AND UNDER 1,000 ACRES.		1,000 AND UNDER 5,000 ACRES.		5,000 AND UNDER 10,000 ACRES.		10,000 AND UNDER 20,000 ACRES.		20,000 AND UNDER 50,000 ACRES.		50,000 AND UNDER 100,000 ACRES.		100,000 ACRES AND UPWARDS.		TRAVELLING FLOCKS.		TOTAL.	
	Holdings.	Sheep.	Holdings.	Sheep.	Holdings.	Sheep.	Holdings.	Sheep.	Holdings.	Sheep.	Holdings.	Sheep.	Holdings.	Sheep.	Holdings.	Sheep.	Holdings.	Sheep.	Holdings.	Sheep.	No.	Sheep.	Holdings.	Sheep.
Burke..	15	118	3	102	7	748	..	..	6	5,801	20	37,801	107	443,042	164	975,883	46	615,492	24	597,994	..	..	392	2,676,981
Burnett	67	1,051	8	333	12	1,607	3	1,170	..	..	..	..	..	..	..	..	..	..	..	..	..	..	90	4,161
Cook	8	218	1	100	1	220	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	538
Darling Downs ..	167	2,630	67	3,653	234	56,437	233	114,500	669	947,010	148	520,124	63	410,870	25	367,225	3	120,628	..	..	..	..	1,609	2,543,077
Gregory North ..	2	17	1	50	1	122	..	..	2	600	5	3,499	39	134,088	78	389,258	23	236,430	31	856,199	1	6,370	183	1,626,633
Gregory South ..	..	..	1	18	..	..	1	44	2	1,254	..	..	13	31,515	16	73,442	10	78,263	15	247,679	..	..	58	432,215
Leichhardt	26	439	17	777	26	2,845	19	5,532	101	96,038	85	178,551	54	214,247	29	196,341	8	243,525	1	28,114	..	..	366	966,409
Maranoa	28	530	17	729	26	4,385	38	19,142	252	292,029	179	399,699	200	723,623	151	868,462	42	492,312	25	551,013	1	5,163	959	3,357,087
Mitchell	13	212	1	60	5	791	2	978	35	32,197	46	87,148	198	711,980	296	1,852,257	79	1,057,542	39	1,372,394	1	8,600	715	5,124,159
Moreton	166	2,297	52	1,677	17	1,517	3	546	3	1,601	1	734	..	..	..	..	..	..	..	..	..	..	242	8,372
North Kennedy ..	16	394	7	467	4	866	1	150	8	2,807	..	..	..	..	..	..	..	..	..	..	..	..	36	4,684
Port Curtis	42	618	10	473	20	2,645	5	603	6	4,189	2	2,644	3	13,500	..	..	..	..	..	..	1	2,800	89	27,472
South Kennedy ..	7	149	5	272	3	798	2	385	9	6,740	5	7,616	16	42,304	9	52,829	5	44,420	1	63,151	..	..	62	218,664
Warrego	2	29	6	187	5	450	3	781	9	4,571	29	55,671	113	322,187	182	882,803	73	645,107	43	1,163,975	1	1,975	466	3,077,736
Wide Bay	84	1,018	8	476	12	3,097	1	25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	105	4,616
Totals—																								
Holdings	643	..	204	..	373	..	311	..	1,102	..	520	..	806	..	950	..	289	..	179	..	5	..	5,382	..
Sheep	..	9,720	..	9,374	..	76,528	..	143,856	..	1,394,837	..	1,293,487	..	3,047,356	..	5,658,500	..	3,533,719	..	4,880,519	..	24,908	..	20,072,804
Average Size of Flocks	15		46		205		463		1,266		2,487		3,781		5,956		12,227		27,265		4,982		3,730	

Registrar-General's Office,
Brisbane, 3rd November, 1934.

G. Porter.
Registrar-General.

Price 5s. 9d.

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